AMERICAN VETERINARY REVIEW.

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EDITORIAL.

OPENING OF THE SCHOOLS.

The veterinary colleges of the country to the number of about sixteen threw open their doors for the admission of students during the early part of October, and from all points come reports of the most encouraging character. The modification of the entrance requirements in New York State secured an increased attendance at both of the universities, the New York-American having 25 freshmen and a return of all the sophomores and those in the graduating class, while the New York State College reports a 33 per cent. increase. Similar encouraging reports reach us from the University of Pennsylvania, Harvard, McKillip, Chicago, Kansas City, Ames, and the Canadian schools, while from a few of the colleges no word has yet been received.

This was to be expected, since the general prosperity of the country and the augmented value of live stock could not fail to send forth young men in quest of a veterinary education. The efforts of interested parties to cause the abandonment of the horse having miscarried and the date of his retirement having been indefinitely postponed, those who have hesitated to come within the profession for fear of its becoming obsolete, may now feel that it offers to young men of education and adaptability more enticement than it ever did, as the field is becoming so widened and diversified that there is plenty to do to meet the

tastes and talents of all; and the returns in gold and fame are as great as in other lines of human endeavor. The list of promotions in the Bureau of Animal Industry, published in the October REVIEW, is an encouragement to those who labor in this field. Such positions are worthy the ambition of men of the highest order, and there are constantly being opened up equally good, if not better, opportunities in the municipal and State departments of health and animal husbandry, while private practice is becoming more remunerative and honorable year by year as the quality of the practitioner and the intelligence of the public become advanced.

SURGICAL CLINICS AT ASSOCIATION MEETINGS.

It has been definitely demonstrated on every occasion where it has been tested that the surgical clinic is a popular section of a meeting of a veterinary medical association, whether it be national, State, or municipal in character. Although it can be truthfully asserted that the American Association has never held a successful one from the standpoint of well-carried-out arrangements, each one of the three thus far held has emphasized the fact that the membership were eager for them; they were on hand early and late, in readiness to witness anything that might be presented, and generous in their applause of whatever appealed to them as being meritorious. The fact that there were few occasions offering them the opportunity for such demonstrations is no fault of the conception of clinics, but to defective arrangements and disappointments in the failure of announced operators to fulfill their engagements. It is to discuss the errors of past endeavors that the REVIEW has taken up this subject at this time, and it expresses the hope that its readers who are familiar with the subject will offer such suggestions during the next few months as will insure the correction of many of the defects that have heretofore existed, and result in the presentation of a better and more satisfactory programme at the meeting of 1901. It has been said that the way to achieve success is by contemplation of our failures, and it be-

hooves us to calmly scrutinize our three years' experiences and three failures, and out of it all evolve a successful scientific and practical clinic. While we are extending the opportunity to others to offer suggestions, we submit our own judgment that one of the chief factors in producing a chaotic confusion in the programme is the effort on the part of the Committee of Arrangements to avoid a conflict with the regular programme. The clinic is broken up into little niches of time when nothing else is announced—an hour or two in the morning, before the hour of assembling of the convention; a little more in the afternoon, and possibly a single operation in the evening. When the members have assembled at the designated field, Dr. So and So has not arrived, or the operator is present but the patient is absent, and when it is assured that the promised demonstration must be postponed, a substitute operation is improvised, which possibly encroaches upon the convention hour, and many are forced to hurry away with a feeling that valuable time has been consumed to little purpose. We throw out the suggestion that this piece-meal policy for holding surgical clinics be abandoned, and in its stead an entire afternoon be devoted to this important section, and that on that occasion the facilities for demonstrations be greatly increased, seats being provided in amphitheatre style, so that all may see and do so in comfort and without the necessity of crowding and climbing. A surgeon who volunteers to be present and to operate, should be made to understand that it is an obligation which cannot be neglected except for good cause. When the full afternoon's work has been completed the section is through with for the meeting, and members may occupy their seats in the convention hall without wondering if there is anything of more value to them transpiring at the clinic.

As we have already said, this subject is opened here for discussion. We have no intention of protruding our views upon the membership further than to express an opinion, and those of others will be welcomed to our pages in the hope that there may come to the Arrangements Committee a suggestion which

will enable them to complete more satisfactory preparations than have hitherto existed.

A COLLEGE WITHOUT A FACULTY.

The novel spectacle of a college opening its doors for the reception of students, with a pretentious announcement of its facilities for imparting a veterinary education, virtually without a teaching faculty, is presented to the public by an. alleged school down in Tennessee. The National Association was urged to visit that section in 1897 for what good it would probably confer upon the profession in Dixie, and as this school sprung up in the wake of its presence there it is presumed that its august deliberations inspired certain self-made veterinarians with the desire to seek fame in a higher sphere than had been vouchsafed to them in earlier life. Its sole owner and promoter, we are informed, is innocent of any knowledge of the science which he professes to teach, except that which comes from hard practical experience, while those by whom he is surrounded in his "faculty" are mostly medical men with more knowledge of other subjects than veterinary science, the only other member, aside from the owner, who is bold enough to affix "V. S." to his name being an individual unknown to local veterinarians, despite diligent search throughout the section. Those who were resting under the belief that veterinary medicine in this country had advanced to a position where such institutions were a matter of history are given a sudden awakening and realization that never in the days of "diploma mills" did so-called schools affront the public with less claim to merit than one or two which have recently come into existence under the sovereign laws of their respective commonwealths. What is the remedy? We do not know. While their utter incompetency to fulfil their announcement pledges is patent to all veterinarians, it is less easy to convince the legal authorities that they are impositions upon the public and barnacles upon an honorable profession. The dupes who may be buncoed into attending their sessions may rise in a spirit of

resentment and bring open charges of fraud against their responsible heads, and thus force the authorities to close their doors; but we doubt not that the ambitions of those who enter such "seats of learning" do not rise beyond the acquirement of a legal right to impose themselves upon a community through the coveted "diploma," irrespective of all other considerations. Their "graduates," of course, are debarred from practicing in any State having competent laws and from all associations of veterinary medical men, and it appears that the most effective means of dealing with such institutions is for the profession to let them severely alone, with the prospect that death from inanition will be the next "announcement."

ATLANTIC CITY BIDDING FOR 1901 CONVENTION.

Through the patriotic energy of Dr. Wm. Herbert Lowe, of Paterson, N. J., Atlantic City has entered the field with a strong determination to secure the meeting of the American Veterinary Medical Association for 1901, as the following letter from Gov. Voorhees indicates:

STATE OF NEW JERSEY, EXECUTIVE DEPARTMENT,
TRENTON, Oct. 11, 1900.

Dr. Wm. Herbert Lowe:

MY DEAR DOCTOR:—I have your letter of Sept. 18 in the matter of the thirty-eighth annual convention of the American Veterinary Medical Association, and note its contents.

As Governor of this State, I do most heartily extend to the above association an invitation to make Atlantic City, in this State, the meeting place of its annual convention of 1901. I do not believe your association can find anywhere a place better adapted for its work, and for the care of the representatives who may be present, and I do certainly hope your efforts in influencing your association to select Atlantic City will meet with success. Very truly yours,

FOSTER M. VOORHEES.

DR. D. E. SALMON presented a paper to the last meeting of the American Veterinary Medical Association, entitled "Rabies and Hydrophobia," in which he answers in most emphatic terms, convincing arguments, scientific testimony, and statistical

data those veterinarians who have been so persistently claiming in the very face of the most authoritative proof to the contrary the mythical nature of this dreaded malady of dogs. The first installment of this splendid production is printed elsewhere in this number, and the author is entitled to the thanks of his *confrères* for the great amount of research and pains he has taken to so completely refute the ridiculous assertions of the canine apologists.

IN the department of "French Review" in this number Dr. Liautard presents an abstract of an article by Prof. Nocard upon the diagnosis of rabies by post-mortem examination, based largely upon the important experiments of Von Gehuchten and Nellis. We regret, however, that the conclusions reached are of little practical value to the veterinarian, who must continue to affirm to anxious victims of the bites of suspected rabid animals that a post-mortem diagnosis is unreliable, and advise that the patient receive the antirabic inoculation.

ERRATA.—In October REVIEW, page 514, line 17, for "Dicrowelium" read "*Dicrocœlium*"; line 18, for "(Dij)' read "(*Duj.*)," abbreviation for *Dujardin*. Page 517, line 6, for "Syodes" read "*Ixodes*"; line 6, for "Boöphylus" read "*Boophilus*"; lines 6 and 7, for "Rhypicephalus annutatus" read "*Rhipicephalus annulatus.*"

DR. F. J. WILSON, the oldest practitioner in Brooklyn, N. Y., died in that city in October. For many years he was the leading veterinarian of the Eastern District, and although a non-graduate, took a great interest in the elevation of the profession. When the Columbia Veterinary College was in existence Dr. Wilson gave the school the advantages of his large practice, and the students collected there every Sunday morning, with some of its faculty, and a large clinic was thus afforded them. The school gave him the addendum degree of D. V. S., in consideration of his work, which caused considerable comment at the time.

ORIGINAL ARTICLES.

RABIES AND HYDROPHOBIA.

By D. E. Salmon, D. V. M., Washington, D. C.

A Paper read before the American Veterinary Medical Association, at Detroit, Mich., Sept. 6, 1900.

There has perhaps never been a time when it was more important than it is to-day for the veterinary profession to have a clear appreciation of what it knows in regard to the subject of rabies in animals and in man. In the pre-experimental period of the profession's existence there was ample excuse for difference of opinion, even concerning the most apparent and most essential phenomena of this disease. It was the time when dependence was placed upon clinical observation of accidental cases, where the conditions were not controlled, and where the conclusions founded upon imperfect evidence were often unsound and liable to vary with the idiosyncrasies of the observer. But that period is past. To-day we have a science resting upon an experimental basis. Facts and conclusions have been established just as rigorously, just as solidly, as in other departments of science. And while we still have much to learn, as they have in every other branch of science, the fact that there are other fields to conquer does not detract in the least from the value or certainty of the results which have already been achieved.

As members of a learned profession it is our duty to know what has been accomplished by the scientific investigation of rabies; and particularly is this duty incumbent upon those who attempt to teach other members of the profession or the laity as to the facts in the case or the attitude of the profession. We have reached a point where the intelligence, the scientific knowledge, the standing of the veterinary profession in this country, I might say of the medical profession as well, are liable to be unjustly questioned because of a few mistaken and misguided individuals who persist in reiterating beliefs which

never were held by a majority of the profession and which were discredited and disproved years ago.

The mistaken views to which reference has just been made may be briefly enumerated as follows:

1. There is no specific disease to which the term rabies can be applied. This alleged disease has not been clearly defined and no characteristic features have been enumerated by which it can be identified. The supposed cases of rabies are ordinary affections such as indigestion, epileptic fits, cerebritis, paralysis, etc., improperly diagnosed.

2. There may be such a disease as rabies, but it is extremely rare. Nearly all the cases alleged to be rabies are ordinary diseases improperly diagnosed. Not one dog in a million supposed to be rabid is really affected with that disease, says one writer, and this opinion is echoed by the editor of a prominent medical journal.

3. The method of diagnosis by the inoculation of rabbits and guinea-pigs is uncertain and misleading. The same results may be obtained by inoculating with inert substances.

4. Admitting that rabies of the dog may be encountered in extremely rare instances, the disease is nevertheless not communicable to man. The alleged rabies of man is a nervous affection developed as the result of worry and fear after being bitten—it is really lyssophobia.

5. The destruction of superfluous dogs and the muzzling of dogs for the control of rabies are cruel and unnecessary measures.

It appears to the writer simply astounding that educated men, much less physicians and veterinarians, will put forward such propositions as these in regard to a disease which has been known and described in every age since the faintest dawn of history and which for a century has been the subject of experimental investigation by the ablest men who have occupied their minds with pathological questions. Nevertheless, it is a fact that the sanitarian of to-day who tries to control rabies is obliged to meet the same kind of arguments which were used

to embarrass his predecessors of one, two and three centuries ago. These arguments are most industriously circulated by the so-called humane societies, which oppose all conclusions based upon experiments with animals, and which foolishly imagine that they are doing a great work for the dogs and cats by casting discredit upon science, even though by so doing they perpetuate this horrible disease of which dogs and cats are the principal victims. But, unfortunately, the humane societies and the lay press are not alone in this effort to discredit science. It was said a few years ago that there had been so much of this sort of literature circulated among physicians that many hesitated to return a death as from rabies when the history and symptoms of the case warranted that diagnosis. This false doctrine has been propagated to such an extent that in one of the great cities of the country, recognized as a centre of medical learning, there have been two coroners in succession skeptical as to the existence of hydrophobia in mankind, and who have refused to record deaths as occurring from this disease even when the cases were reported as such by the attending physician. In one such case I understand the diagnosis was proved by the inoculation of rabbits and that the disease was transmitted to three series of these animals. In another and more recent case it is reported that an eight-year-old child was bitten in the ear by a tramp dog which strayed into the kitchen of her home. The wound soon healed and nothing was thought of it until about six weeks later when the child complained of pain in the head and neck, which was soon followed by difficulty of drinking, spasm of the pharyngeal muscles upon the slightest draught of air or touch of water upon the body, or suggestion of drinking, great nervousness with paroxysms of excitement and fear. Death occurred in about two days. Nevertheless the coroner was positive, according to press reports, that the disease was not hydrophobia. How did he know?

In recent years we find very few veterinarians in this country who practically agree with the humane societies and

either deny the existence of rabies or contend that if the disease exists it is so rare as not to be deserving of attention. The existence of such opinions in our profession emphasizes the importance of investigations to collect the facts and of discussions to fix these facts in the minds of our *confrères*.

It is not many years since the effort was made to eradicate contagious pleuro-pneumonia from this country, and then we were met by the same class of reckless assertions, to the effect that there was no pleuro-pneumonia in the country, that pleuro-pneumonia of cattle was not contagious, and that we might kill all the cattle in the country and when we stocked up again we would have the same disease, since it was due to the conditions of environment and not to contagion. How completely all of these assertions have been disproved is known to every one of you. Again, it is not many years since an estimable army surgeon was presenting papers before our medical associations to prove that there was no such disease as Texas fever. To-day Texas fever is so well known that no one would undertake to question its existence and specific nature. Of late years, it has been the existence and specific nature of rabies that has been doubted and questioned and ridiculed.

THE REALITY OF RABIES.

What do we know about the existence of rabies and how do we know it? Let us briefly inquire.

From the time of Aristotle (322 B. C.) till the present day we have clear accounts of this disease existing through every age, and provoking fear and horror in many countries. It was always caused by the bite of an animal, which animal was generally alleged to be rabid. It was almost invariably described as fatal in men and animals. The symptoms from the earliest times have been given as nervousness, restlessness, fear, irritability, paroxysms of fury, spasmodic contractions of certain muscles, paralysis and death. Aristotle admitted that the disease was fatal to dogs and every other creature which they bite, except mankind. This early mistake in regard to the immunity of man has been carefully handed down across the centuries and is

still repeated on every hand by those who oppose measures for the prevention of the disease. It may be freely admitted, therefore, that there have probably been many in all ages who have doubted the existence of the disease both in mankind and in animals, that numerous articles and books have been written to prove that the disease called rabies was not contagious and that the supposed rabies of man was lyssophobia, a nervous affection brought on by fear and excitement.

The medical profession as a whole has, however, always recognized the existence of such a disease as rabies in man. The veterinary profession has from its foundation recognized the existence and contagiousness of the disease; its schools from the earliest to the latest have consistently taught this doctrine, and its text-books are all but unanimous on the subject. Would it not be wonderful, amazing, incredible, if at this late day it could be proved that the thousands and hundreds of thousands of observations recorded from the birth of history to the present day were misconceptions, that the authors were deceived and the disease a myth? Where can you find a parallel to such a complete overthrow of an ancient, and almost universally accepted conclusion concerning a phenomenon so accessible to observation and investigation?

The doubts raised from time to time concerning rabies and its characteristics were, however, early met by scientific experiments. Zinke* in 1804 announced that he had inoculated a dog, a rabbit and a cock with saliva from a rabid dog, taking the saliva with a brush from the animal soon after its death and spreading it over superficial wounds of the inoculated animals. The dog was inoculated in an anterior limb, and showed prodromic symptoms on the eighth day and was rabid on the ninth day. The rabbit was rabid on the eleventh and the cock on the fourteenth day.

This experiment made so early in the century proved that the disease of the dog called rabies was communicable by inoc-

* Zinke, Gottfried: Neue Ansichten der Hundswuth, etc. Jena 1804. S. 180. Quoted by A. Högyes: Lyssa, Wien 1897, p. 32.

ulation to the dog, the rabbit, and the fowl. It proved it to be a specific disease and that the virus existed in the saliva. In this it confirmed the results of clinical observations extending over many years.

Count Salm-Reifersheid* in 1813 recorded experiments in which several dogs were inoculated, part with fluid and part with dried saliva from a rabid dog. These became affected with rabies after eight to ten days.

Berndt† in 1822 inoculated four wethers with saliva from the mouth of an ox which had died of rabies. The inoculation was made by smearing the saliva over a wound made by an incision through the skin of the limbs. All of these sheep contracted rabies, the inoculation period being 22, 25, 26 and 31 days.

Hertwig inoculated fifteen dogs during the years 1823, 1824 and 1825. The material used was saliva from rabid animals, and this was placed in lancet punctures made in the skin of the frontal region, except with two animals in which the inoculation was made at the back of the neck. Six of these dogs contracted rabies, the periods of incubation being 19, 27, 32, 34, 39 and 40 days.‡

On June 14, 1841, Prof. Rey, of the veterinary school of Lyons, France, allowed a dog brought to the hospital affected with rabies, to bite a ram on the nose and right foot. The wounds cicatrized in five days. In thirteen days (June 27) the animal showed the first symptoms of rabies. The following day it became furious when approached, violently attacked objects presented to it, threw itself against the walls and the bars of its pen or rushed upon persons who came near it. It seized its chain with its teeth, attacked another sheep placed

* Allgem. Anzeiger, 1813, No. 1. Quoted by Högyes, *loc. cit.*, p. 32,

† Journal der practischen Heilkunde, G. W. Hufeland, 1824, Nov., pp. 59–61.

‡ Beiträge zur nähern Kentniss der Wuthkrankheit odor Tollheit der Hunde, vom Oberthierarzt Dr. Hertwig. Journal der practischen Heilkunde von C. W. Hufeland, 1828, pp. 112–129.

near it, butted it, then jumped upon it as if for copulation. The third day of its illness it was very weak and unable to rise. The fourth day it died.

Two days before the death of the ram mentioned (June 28) two other rams were inoculated from it. One had the lips rubbed several times against those of the affected animal, and the other was inoculated in the nose and upper lip by punctures of a lancet charged with saliva. The former did not contract the disease. The latter was first affected August 6, or 38 days after inoculation. The symptoms were similar to those of the first ram and resulted in death.

December 21, 1841, a sheep which approached the kennel of a rabid dog at the Lyons school was seized by this animal and bitten through the nose. January 4, 1842, or fifteen days after inoculation, it showed the first signs of rabies. It died the third day. The second day of the disease, saliva from this sheep was inoculated upon another sheep by lancet punctures at the nose and internal aspect of the upper lip. This sheep became affected January 27, or the twenty-second day, and died the night of the 30th.

January 30, 1842, the last day of the life of the sheep just mentioned, its saliva was inoculated by lancet punctures in the nose and lip upon two other sheep. The first contracted rabies in 23 days, dying two days later; the second became affected in 36 days and died in three days.

March 8, a sheep was inoculated from the last mentioned animal and in the same manner as already described. April 15 it presented the symptoms of rabies after 38 days' incubation. It was at first violent and later paralyzed in its posterior extremities. It died the ninth day.

April 20, a sheep was inoculated with the saliva of the one last mentioned. June 1, or 42 days after inoculation, it presented symptoms of rabies of greater intensity than the one from which it was inoculated. It showed marked excitement, striking the soil violently with its fore feet when approached; when set free it ran after people, trying to strike them with its head

and attacked particularly dogs. It lived six days, complete paralysis of the posterior limbs occurring before death.*

A lamb was inoculated from the last of the series, which did not contract rabies; so that out of eight inoculations of sheep by biting or lancet puncture the disease was transmitted seven times.

These successful experiments made during the first half of the century by competent men are absolutely conclusive as to the existence of a disease of the dog communicable to dogs and to other animals by biting and by inoculation with the saliva. If this disease is not rabies, what is it? And if you give it some other name, do not the facts stand the same under one name as under another?

It is not correct to say that the disease alleged to be rabies has not been defined with sufficient clearness for its identification. Let us see. A disease affecting principally the nervous system, shown by restlessness, irritability, fury, convulsions, paralysis, death; caused by the bite of an animal, similarly affected; communicable by inoculation with the saliva; having a long period of incubation (three to six weeks); comparatively short course of disease (two to ten days); invariably fatal. Is not that picture clear enough for identification? With what other disease can it possibly be confused? Let those who make these allegations in general terms descend for a moment to details and answer these questions.

Further, it is hardly conceivable that an intelligent person, least of all a physician or a veterinarian, would hold at the present day that a dog affected with simple indigestion, convulsions, cerebritis or paralysis would develop virulent saliva capable of causing by inoculation a fatal disease of the nervous system in other animals and with the transmitted peculiarity of virulent saliva. If this fanciful idea were established as a fact, the dog would be about the most dangerous animal in existence, and very few of us would care to come in frequent contact with

* Rey. "Expériences sur la Rage." Journal de medécine de Lyon, Dec., 1842, p. 461.

him. So far from making us more tolerant of the dog, the demonstration of the spontaneous development of a deadly virus in this animal's saliva, for such slight causes as have been assigned, would make us shun and fear him as we do the most venomous serpents. Fortunately for the dog, fortunately for mankind, and fortunately for all animated creatures, this conception of the self-constituted apologists for the canine species is without the least foundation in science and undoubtedly false.

The spontaneous generation of rabies under certain conditions has been held by many eminent men who would not for a moment entertain the view that the disease developed from indigestion, epileptic fits and other common ailments. The same men held that rinderpest, pleuro-pneumonia and glanders originated spontaneously. But how rapidly has the belief in the origin of these diseases in the absence of contagion died out since the discovery of the nature of contagion. Who to-day believes in the spontaneous origin of pleuro-pneumonia or glanders? We know that these diseases are caused by vegetable parasites of the nature of bacteria, and that if the bacillus of glanders or that of pleuro-pneumonia originally had its habitat in nature outside of the animal body, as is probable, the transformation from a saphrophytic to a parasitic existence unquestionably required unusual conditions and a long period of time. That the same is true of the contagion of rabies follows from analogy and is confirmed by the failure of the disease to develop in Australia, and by its absence from Sweden and Norway since its eradication from those countries. More recently we have seen the disease in Great Britain reduced from more than 600 cases a year practically to zero by a few years of intelligent and systematic repression. Surely this result would not have been attained if the disease frequently originates *de novo*. There is no direct evidence in favor of the spontaneous generation of rabies; investigators who have tried to produce it by keeping dogs under the conditions which were said to cause it, have uniformly failed. The tendency of modern thought and modern knowl-

edge is unfavorable to this hypothesis, and it is regarded as antiquated, discredited and unworthy of serious consideration in the absence of direct and convincing evidence. If we admitted the spontaneous generation of the disease, however, such a conclusion would in no sense benefit the dog nor those interested in that animal. On the contrary, it would make us more suspicious of the canine species and require all the more rigorous destruction of superfluous animals with the strict enforcement of regulations to prevent contagion.

(*To be continued.*)

SOME NEW VETERINARY DRUGS.

By A. C. HASSLOCH, V. S., NEW YORK CITY.

TANNOPINE (VETERINARY).

Manufactured by the Farben-Fabriken of Elberfeld Co. (Germany).

Tannopine is a chemical combination of tannic acid and hexa-methylen-tetramine. The glucoside tannic acid is so well known that it requires no further explanation. Hexa-methylen-tetramine is the product of a basic compound derived from ammonia by the substitution of NH_2 for the H molecule, with methylen, a radical molecule of the composition CH_3. Tannopine is a reddish-brown powder, odorless, tasteless, of a slightly acid reaction (almost neutral), insoluble in water, alcohol, ether and dilute acids, but dissolving gradually in weak alkaline fluids. It contains about 87 per cent. ac. tannic and like the latter is incompatible with compounds of iron. On account of its chemical composition it is not dissolved until it reaches the duodenum. Beginning at this portion of the gut it exerts its action as a non-irritant astringent, antiferment, and intestinal antiseptic throughout the entire length of the intestinal canal, and is of great service in the treatment of diarrhœal affections, acute and chronic intestinal catarrh, and enteritis of horses, cattle and the smaller animals.

Dose.—Horse, ʒ ss–ii; cattle, ʒ i–iv; dogs, gr. 15–45.

Can be readily given in oatmeal gruel, or with the feed, because it is tasteless.

Case A. — A high-strung, nervous eight-year-old mare, speedy, had shown symptoms of intestinal catarrh for a period of two years. Her symptoms were always much aggravated after driving, so much so that even with the best of care she would remain idle for several days after a long drive. She had been bred the year before, but aborted. She received first a drench consisting of formaldehyde ʒss, turpentine ℥ii, raw linseed oil enough to make Oj. After this had operated, she received tannopine ʒss, three times a day, with the feed, for one week, when she showed slight improvement; the dose was now increased to ʒi for another week, with more decided results; third and fourth weeks, ʒiss, night and morning, and she made a complete recovery, gaining in weight while at moderate work.

Case B.—Two setter puppies, 10 weeks old, developed diarrhœa as the result of feeding on milk just turning sour. The diarrhœal condition had extended over four days when I first saw them. They presented the usual symptoms of emaciation, weakness, fever, abdominal tenderness, more or less tympanitis, inappetence, and diarrhœal discharge, profuse and mucous in character, and since the last day containing some blood. They were at once given oatmeal gruel with whiskey and put on tannopine, 10 grs., made into an electuary with some glycerite of starch; this dose was repeated every three hours till four doses had been given, then three times a day. Febrile symptoms were somewhat abated by the night of the first day's treatment and entirely absent by next morning. They now began to eat and were out of all danger on the third day. Treatment was continued for several days as a matter of precaution. When seen a week later they appeared well and playful.

Case C.—Gray gelding, 10 years old, weight about 1700 pounds. Affected with acute intestinal catarrh, following an attack of heat exhaustion. This animal showed the usual

symptoms of the disease, diarrhœa being particularly profuse. He was given a bolus of ℥iv as an initial dose, and ℥ii in oatmeal gruel four times a day. At the end of fourth day, the dose was reduced to ℥i; at the sixth day he was discharged and has worked ever since.

EPICARIN (VETERINARY).

Manufactured by Farben-Fabriken of Elberfeld Co. (Germany.)

This is a condensation product of a salicylic acid derivative and betanaphthol, and occurs in commerce as a reddish-brown crystaline powder, permanent in air, of a decidedly acid reaction, soluble in alcohol and ether, but insoluble in water.

Being an acid, it combines readily with the basic alkalies to form soluble neutral salts. Its melting point is 199° C. The veterinary epicarin is a raw product and but little of the pure is obtainable. However, when pure, it occurs as small, colorless, needle-shaped crystals, imparting a clear straw color to its alcoholic solution. Veterinary epicarin is non-toxic to such a degree that dogs treated with it and freely licking themselves have developed no untoward symptoms, and it is therefore preferable to the more toxic parasiticides and germicides, such as carbolic acid, creolin, lysol, creosote, trikresol and others which are extensively used in the treatment of mange and other skin diseases. Experiments of Dr. Geo. Müller, of Dresden, with veterinary epicarin, on the *sarcoptes minor* of the cat and *acarus folliculorum* of the dog proved conclusively that the remedy destroyed these parasites in from 5 to 15 minutes, when applied in a 10 per cent. solution, in alcohol, while mixtures of the remedy with fat, oils and green soap did not prove destructive for several hours. Prof. Frick, of Hanover, recommends the 10 per cent. solution of epicarin in alcohol as the safest and most efficient destroyer of acari and sarcoptes.

My own experience is that epicarin is not only a most efficient parasiticide, but also of great utility in the treatment of itching skin diseases of horse and dog, giving rapid relief from the irritability of the skin, accompanying that common disease of the dog, eczema, in its manifold forms. In order to secure

satisfactory results in long haired animals, it is necessary to apply the solution with a strong stiff brush, so as to ensure forcing it through to the skin.

COLLARGOLUM—ARGENTUM COLLOIDALE CREDÉ.

Argentum Solubile Credé—Soluble Metallic Silver Credé.

Prepared at the Chemical Factory Von Heyden at Radebeul, near Dresden, Germany, after the process of Prof. Credé.

Collargolum is a non-toxic, allotropic silver, occurring in commerce as brownish-black, lustrous, irregular, fragile lumps, of neutral reaction, and readily soluble in water and albuminous fluids. According to Credé it remains as metallic silver in sterile blood or lymph, but when in the presence of pathogenic bacteria or their toxins, enters into combination and acts as a powerful germicide or antitoxic agent. In veterinary practice it may be regarded as a specific in the treatment of purpura of the horse and can be safely administered in very large doses, as argyria does not appear to result from its use.

It has been proposed as a diagnostic agent to detect glanders in the horse, but in this it fails entirely. In purpura, I have found that this form of silver, when administered subcutaneously or per os, is of little or no use, but very prompt results follow the intravenous injection of this agent. The best form for this purpose is a solution of 0.5 (7½ grs.) in 50 cc. of sterile water to be thrown directly into the jugular vein; these injections are made three to five times daily; in fact, Prof. Dieckerhoff has used it as frequently as every two hours during the first day. It is a fact that in all of my cases treated with collargolum the petechiæ disappeared in a day or two at the most, while the swellings were more persistent, and while these were considerably abated, they did not disappear entirely for several days. Some cases received as many as 22 intravenous injections without any bad results; in fact, I have not lost a case of purpura since I began treating this disease with collargolum, which I push till the petechiæ and swelling disappear. When very frequent injections are administered, the fæces become blackened. Local applications, consisting of salt

solution, containing some formaldehyde, help to allay the swellings. For heavy draft horses the initial dose may safely be 10 grs., as these animals are not very susceptible to silver in any form, and collargolum of all others is the least toxic.

In conclusion, I would say that in the case of a horse, a brown gelding aged six years, weight about 1600 pounds, was suspected of glanders, and on being treated with mallein, exhibited a positive reaction. For experiment, I began treatment on him with three intravenous injections of collargolum of 10 grs. each, daily; at the fourth day, there was no longer any nasal discharge and all symptoms appeared diminished. The treatment was then continued, twice daily for a week, then once daily for two weeks, at the end of which time there was nothing left to show that the animal had ever been infected, excepting the slight thickening of the off hind leg and the scars of the healed ulcers. Temperature returned to the normal on the fourteenth day. The animal was turned out to pasture, while given a tonic twice daily, and one month later was put to work. At last accounts he was still working, and appeared in excellent health and spirits, although the hind leg remained somewhat thickened. This horse died of colic during the early part of August, without an opportunity to hold a post-mortem. This is the only case of glanders I have ever had the opportunity to treat medicinally, and I am willing to undertake another if the circumstances are favorable.

THE RELATION OF VETERINARY MEDICINE TO THE PUBLIC HEALTH.

By William Herbert Lowe, D. V. S., Paterson, N. J.
(*Former United States Veterinary Officer of the Port of New York.*)

A Paper read before the American Veterinary Medical Association at Detroit, Mich., September 5, 1900.

I think it is a safe statement to make that people recognize and appreciate much quicker and in a fuller sense what veterinary medicine does for their pet animals and for themselves, in

a commercial sense, in protecting the animal wealth than they do for what the science does for the health and lives of the people themselves.

When the veterinary practitioner is successful in restoring to health his patron's pet dog, or in saving the life of his valuable horse, his services are in the great majority of instances appreciated, but what he does to protect the health and lives of the people is seldom understood or recognized.

A great work is being done by qualified veterinary practitioners all over this broad land in sanitation and preventive medicine, and it is a deplorable fact that the nature and scope of this work is not more fully understood by otherwise intelligent people. Preventive medicine will advance as its value is recognized and demanded by the public generally.

Not many years since when contagious pleuro-pneumonia broke out among cattle and the animal industry of the country suffered heavy financial losses it did not take the public long to demand State and National legislation to exterminate the disease. This disease struck the most sensitive thing in creation—the bank account—and although there was absolutely no danger of transmission of the disease to mankind, yet measures were taken at once, which, under able guidance at Washington, resulted in the extermination of the disease. While this was as it should have been, yet it seems strange from the standpoint of the veterinary profession that the public is so slow in supporting and encouraging what veterinary science is capable of doing for the health and lives of the people themselves. The conscientious veterinarian is constantly looking out to improve sanitary conditions, have animals kept under hygienic conditions, as well as to treat diseased animals, and last, but not least, to prevent the transmission of disease to human beings. It should be remembered that the veterinarian is truly the guardian of the public health, as in many instances diseases transmissible to man as well as bad sanitary conditions first come under his observation. If he deals with them as they should be dealt with he protects human life and health. Is it

not better to prevent infection than to allow it to occur and then try to relieve or cure the patient? Of course, it is not intended or contemplated to put the human practitioner out of business, but simply to relieve the busy practitioner as much as possible.

Speaking seriously, permit me to say that a large integral part of preventive medicine belongs essentially to comparative medicine, and nobody recognizes and appreciates this fact more than far-seeing members of that time-honored profession. The truth is that the two branches of medicine, human and veterinary, are inseparable. No advance can be made in one without benefitting the other. The contemporary advances in medicine have necessitated an extensive remodelling of the medical and veterinary curricula and methods, and we see as a result the incorporation of the principal veterinary colleges in our great universities.

No fact has drawn a closer connection between animal and human diseases, or the protection of the public health through domestic animals, than the introduction of the antitoxin principles of serum therapy. The immunizing of animals against fatal contagious diseases; the rapid and certain diagnosis of latent diseases which cannot be known by physical symptoms and their early isolation before they have spread their disease germs among their kind, or even to the human family; the cure of some diseases by the administration of repeated doses of attenuated virus and the prevention of development of disease by their early administration—are phases of the rôle of veterinary science which makes it a great preserver of the public health. Contemplate for a moment the importance of these serums: Tuberculin, used for the diagnosis of tuberculosis in dairy cattle; mallein, used for the diagnosis of glanders in the horse; vaccine, employed to protect mankind from small-pox; tetanus antitoxin, employed in the treatment of lockjaw; diphtheria antitoxin, employed in the treatment of diphtheria, as well as the antitoxins employed in anthrax, rabies, and other diseases. The value of animal serums employed for diagnostic, prophy-

lactic and therapeutic purposes to mankind cannot be estimated.

We hear a good deal in these latter days about the "passing of the horse," which is absurd; but even if such were the case, there would still remain a vast field open in this country for qualified veterinarians in connection with the work of State and local boards of health, throughout the length and breadth of this broad land, to say nothing of laboratory and experimental work which veterinarians must participate in if true science is to advance as it should. Another great field for the veterinarian is in aiding the development and maintenance of the animal industry and wealth of this country; not only in presenting and actually treating and restoring sick animals to health, but primarily in the science of breeding and in the development of animal life for special purposes useful to man, as well as in securing a sound, wholesome meat and milk supply. Then, again, people will always have dogs and pet animals that they want cared for when ill; so it must be evident to every thoughtful person that the field of veterinary research and practice is almost illimitable to the scientific veterinarian.

The United States Bureau of Animal Industry is doing a great work in the matter of the inspection of meat for inter-State and foreign trade, but this matter of meat inspection should not stop here. We as a people are a business people, and here again the financial considerations seem to have more weight with us than that of our health. We are more particular, yes, far more particular, about the quality and healthfulness of the meat we export to England, France and Germany, than we are of the meat produced for home consumption.

This is no criticism of the work of the Bureau of Animal Industry, for this branch of the Federal service is carried out as far as the law contemplates and in a very effectual and far-reaching manner. It is the function of local boards of health to take care of this matter. Competent veterinarians must be selected to do this work if it is to be of any real value to the public.

The scandals and sensational reports of bad meat supplied to our soldiers in the Spanish-American war must have suggested the importance of an adequate veterinary inspection of animal food and what it would have meant to their health and the lives of the men serving in our army.

A great deal has been said recently about milk inspection, but it seems to me that the authorities in a great many instances begin at the wrong end of this whole business. Instead of beginning by inspecting the milk, as is often done, they should begin by inspecting the animals, their stables, and the dairy generally. Every dairy should be under veterinary supervision. A good cow, healthy and sound, properly stabled and properly fed, is going to give good, wholesome milk; and a poor cow, unthrifty or unhealthy, improperly stabled and improperly fed, is going to give poor, unwholesome milk.

The veterinary inspector should require good hygienic and sanitary conditions. The cows as well as the stables should be kept clean, the drainage and ventilation must be looked after, and the cows must have ample air space and light. Proper and good food and pure drinking water are essential. The milk as soon as drawn from the cow should be removed to another building, to be taken care of and prepared for market away from objectionable odors and injurious bacteria and germs. Not infrequently healthy milk absorbs poisonous or disease germs between the time it is drawn from the cow and the time it is delivered to the consumer. A few enterprising firms have done much to provide a wholesome milk supply, such as the Fairfield Dairy Company in my own State, but the general way cows are cared for and fed, and the way that milk is usually handled, is far from what it should be. The public need educating in this matter and local boards of health should require proper veterinary supervision over dairies and the milk supply in every locality.

I do not wish to tire you with a long paper, so will conclude with the request that the relation of veterinary medicine to the public health shall be discussed as its importance demands.

THE RELATION OF BOVINE TO HUMAN TUBERCULOSIS.

By G. A. Johnson, D. V. M., Sioux City, Iowa.

Read before the Sioux Valley Medical Association, at Storm Lake, June, 1899.

Mr. President, Ladies and Gentlemen: Perhaps you, my hearers, are not in accord with him who sang "Tell me the old, old story, tell it again," but I trust that you will bear with me for a short time while I give you a somewhat recent version of the old, old subject, tuberculosis.

I say the old, old subject, for history from the earliest times to the present day is replete with accounts of a disease that today we term tuberculosis.

Various terms have been used to designate the disease, and numerous theories have been advanced to explain its etiology and pathology. Often these theories confounded this with other and entirely dissimilar diseases, and until recently several of the localized manifestations of the disease were considered as separate and distinct diseases.

At one period the disease would be considered contagious, and at another, not so. These changes in the prevailing theories have been much more marked and frequent among physicians than veterinarians. Theory could not convince the veterinarian that the disease was not contagious, when he saw it spread, gradually, yet surely, from one animal to another under favorable conditions.

But it was not until the latter half of the nineteenth century that the etioiogy and pathology of this "great white plague" were placed upon a sound basis, through the works of Villimian and Koch.

Notwithstanding the fact that much has been accomplished since these discoveries were made, there remain many phases of the subject to be worked out. One of the most important of these problems yet to be solved is the relation existing between human and bovine tuberculosis. And it is this phase of the subject that I wish to present for your consideration this evening.

Succinctly stated, the proposition is, that tubercular lesions, wherever found, are the direct results of the action of the tubercular bacillus; and further, that the domestic cow is the natural harbinger of this bacillus; or in other words, tuberculosis was primarily a disease of the bovine species, and is found in man and other animals as a result of transmission, brought about through the ability of the tubercular bacillus to adapt itself to the various conditions, as found in the various animals.

I fully appreciate the fact that this position is not in accord with the prevailing thought of the medical profession; but it would be a waste of time and energy, yours and mine, for me to present thoughts fully in accord with yours.

Assuming that it is generally agreed that the disease is transmissible from one animal to another, and from various species to others, man included, I shall confine my efforts to a brief résumé of some of the facts that indicate that tuberculosis is naturally a bovine disease.

Premises.—If we find that a certain disease is always prevalent where certain conditions prevail, the world over, and that it is never prevalent where these conditions do not exist, we have at least very strong presumptive evidence that these particular conditions must exercise a greater or less influence upon the distribution and spread of this disease.

This fact having been established, it at once places the disease in a new light, and suggests very important factors in relation to the control or eradication of the disease.

If this premise is tenable and susceptible of a logical deduction, and I believe that it is, such factors should always be considered in dealing with any disease, but more especially a contagious one.

In following out this thought, a brief examination of some of the various conditions in which we find tuberculosis most prevalent may present a new phase of the question.

Climate.—While a dry, temperate climate may have more or less favorable influence upon the progress of the disease, we know that no set of climatic conditions, as to heat or cold, dry-

ness or moisture, constantly prevails, for we find that the disease is prevalent in various sections from the torrid to the frigid zones.

Again, altitude, while it has in most places a marked influence on the progress of the disease, has but little influence upon the distribution of it, as is shown in the fact that certain peoples inhabiting the Dead Sea basin, which is between 100 and 200 feet below the sea level, are free from tuberculosis; whereas, it is more or less prevalent among most people inhabiting the mountainous regions of Europe and America.

Civilization is not a constant factor in the distribution of this disease, for some of the savage and semi-civilized peoples are seriously afflicted with tuberculosis.

Other things being equal, we find the disease more prevalent the denser the population, but density of population is not a constant factor in the distribution of this disease, for we find that the masses of the people of China and India, two of the most densely populated countries of the world, are comparatively free from tuberculosis, whereas the disease is quite prevalent among the farmers of Europe and America.

Filth and poor sanitation have a marked influence in hastening the development of the morbid processes, but they are not constant factors and exert but little influence upon the distribution of the disease, for we find it all the way from the wigwam to the palace.

Thus we find that while the various conditions of climate, altitude, sanitation, etc., exert more or less influence upon the development of the morbid processes, they have but little influence upon the distribution of the disease.

Perhaps you are saying that tuberculosis is so widespread and is prevalent under such diverse conditions that there are not and cannot be any constantly associated factors in its distribution.

Nevertheless, a careful study of the geographical distribution of tuberculosis reveals the fact that all peoples who use the milk and flesh of the domestic cow (the in and in-bred cow)

as food products, are more or less afflicted with tuberculosis. And further, that there is usually a very uniform ratio between the quantities of such foods consumed and the prevalence of the disease among the people.

On the other hand, all of those people who do not use the food products of the domestic cow are comparatively free from the disease.

The exceptions to the above are those communities where there are a greater or less number of transient tubercular patients, or where a greater or less percentage of the inhabitants are tuberculous subjects, who have migrated to these special localities that they might receive such advantages as climatic conditions and altitude might afford.

A short résumé of the geographical distribution of the disease will, I think, justify this statement of facts:

Prof. E. F. Brush, M. D., of Mount Vernon, N. Y., in a paper read before the New York Academy of Medicine, April 18, 1889, makes the following statement: "This insidious and delusive disease is not the result of civilization, as is generally supposed. Barbarous and semi-civilized races are afflicted as severely as many of the most advanced civilized races.

"Neither geographical position nor climatic conditions are a factor in the distribution of pulmonary phthisis. Every known part of the globe, with a few isolated areas excluded, is a habitat of the disease. After several years of close study of the affection, and consulting all accessible statistics and the habits of the people where the disease prevails, the only constantly associated factor is found, in my opinion, in the inbred bovine species, without any regard to the social position of a community or its geographical habitation, terrestrial or atmospheric condition. If a community is closely associated with inbred cattle, tuberculosis is prevalent."

In the fifteenth annual report of the State Board of Health of New York, for the year 1895, on page 720, may be found the following: "Human tuberculosis is co-extensive with bovine tuberculosis. Broad generalization of our knowledge shows a

close parallelism between the numbers of dairy cows and the prevalence of tuberculosis in the human race. Countries that have few or no cattle, or in which the herds are mainly kept in the open air, and are therefore largely protected from the disease, show as a rule little tuberculosis in man."

Europe.—In the European countries cattle have existed and tuberculosis has prevailed in man, to a greater or less extent, for centuries. Some special localities will be mentioned later.

In some of the more recently civilized countries, we find that tuberculosis was very rare or unknown before the introduction of the domestic cow.

Australia.—During the early settlement of Australia by the English, tuberculosis was so rarely seen as to give strength to the idea that the climatic conditions of the country were incompatible with the disease. But with the advent of cattle raising, which began to be carried on extensively in 1821, consumption began to appear among the people and it has gradually increased, as has cattle raising, until the disease has become nearly as prevalent there, notwithstanding the delightful climate, as it is in the mother country, England.

New Zealand.—A similar condition prevails in New Zealand; previous to the colonization of this country by the English, phthisis was unknown among the Maories. But with the advent of the Englishman's cow, tuberculosis became a veritable scourge to this simple people, that threatens the extinction of the race if measures are not taken to control its spread. As Hirsch has so well put it: "In my opinion, the death rate from phthisis will keep on increasing in that locality if the breeding of cattle is not properly regulated by law." This statement of Hirsch means that tuberculosis must be controlled in cattle, or the Maories must go.

South Africa.—In South Africa we find a different condition. The early explorations of the white man revealed the fact that the principal vocation of the coast tribes was cattle raising. And, owing to the peculiar customs of these tribes, their cattle were very closely inbred. It was also noticed that tuberculosis

of a very malignant type prevails among these tribes. Whereas, the tribes of most of the interior parts of Africa, who have no domestic animals because of the Tsetse fly, are free from tuberculosis.

Madagascar.—The native tribes of this island have comparatively large herds of cattle, the flesh and milk of which form their principal source of food. And, according to Grenet, this semi-civilized people are severely afflicted with tuberculosis.

North American Indians.—Previous to the time that Uncle Sam placed the Indians under his fatherly care, they were free from tuberculosis; but since they have so far advanced in civilization as to eat beef furnished to them by this government, tuberculosis has become very prevalent. According to some of the physicians who have been stationed at some of the Indian reservations, tuberculosis causes as high as 50 per cent. of the mortality of some tribes. The custom of dividing a carcass of beef among a large number of Indians, and the fact that they eat any and all parts uncooked, either fresh or dried, will probably account for the prevalence of the disease, as a single carcass would, under these circumstances, serve to infect a large number of Indians. Some have attempted to account for this unusual per cent. of infection by the filthy habits and unsanitary abodes of the Indians. But I am of the opinion that there are no reasons to believe that the Indians are filthier to-day than they have always been. Nor are the Indian wigwams any filthier or as close and unsanitary, as are the igloos of their northern brothers, the Esquimaux; yet these latter people, in their natural haunts, are free from tuberculosis. The Esquimaux has his dogs and reindeer, but no tuberculosis; while the Indian has his dogs and beef, and is seriously afflicted with tuberculosis. On the other hand, it has been found that the Indian is no more susceptible to the disease than is the Esquimaux. For when the Esquimaux is brought in contact with the white man and his cow, he readily contracts the disease, as is shown by the prevalence of tuberculosis among these people who live in the Danish settlements of Greenland.

St. Michaels Island.—In St. Michaels Island we have a somewhat different condition. Large numbers of cattle and sheep are kept on the island, but they belong to the landlords, who export most of the meats and milk products. The peasants who take care of the stock and market the products toward payment of rent for the land, principally use the ass as a beast of burden and a milk producer for his own family, because this animal can be kept more economically. Notwithstanding the fact that the climate is not favorable for tuberculous people, the disease is very rarely seen among the peasants.

Iceland.—A very similar condition exists in Iceland, yet the Icelanders are quite susceptible to the disease when they emigrate to Denmark, where meat and milk are staple articles of food.

Switzerland.—In some of the cantons of Switzerland there are few cattle, goats being largely used instead, and tuberculosis is not common in man, while in other cantons there are more cattle, and tuberculosis is more prevalent among the people.

Italy.—In Italy, a country blessed with one of the balmiest climates of the globe, tuberculosis is very prevalent.

Steppes of Russia.—The Cossacks who inhabit the steppes of Russia are free from tuberculosis. These people use the flesh and milk of the horse for food. They have large numbers of horses, but no cattle.

Great Kabylia.—Tuberculosis is unknown among the semi-civilized tribes of Great Kabylia. These people have large flocks of sheep and goats, but no cattle.

South America.—Similar conditions are found in a majority of the South American countries. That is, they do not use much beef or milk, and they are comparatively free from tuberculosis.

The United States.—But let us come a little nearer home. A few years ago when the red man followed the bison and the deer trails over our western prairies unmolested by the hand of civilization, Minnesota and Iowa were thought to be nature's

sanitaria for consumption. But to-day we find the white man in possession, and cattle raising one of the principal industries of this comparatively thinly settled country. And tuberculosis is quite prevalent among the people; while it is estimated that 1½ to 3 per cent. of the cattle (and we know that as high as 75 per cent. of some herds) are tubercular. Thus we find that as the country settles up, and cattle raising takes the place of the chase, nature's sanitarium moves to the west.

China.—In China we find a peculiar condition relative to tuberculosis. The wealthier, or ruling classes, who live in the best homes and are surrounded with the best sanitary conditions of the country, having plenty to subsist upon, and using more or less of the food products of the cow, are frequently afflicted with tuberculosis, while the poorer classes, who can scarcely eke out an existence, and live in crowded quarters and under conditions that are anything but good from a sanitary standpoint, subsisting almost wholly upon a vegetable diet, probably never tasting meat other than rat soup, are free from tuberculosis.

India.—A somewhat similar condition prevails in India. Owing to religious beliefs these people are largely vegetarians.

Other and similar instances could be cited, but I trust that sufficient has been presented to substantiate the statement that among every people who use the food products of the domestic cow, tuberculosis is more or less prevalent; while it is rarely, if ever, seen among those peoples who do not use such foods.

Comparison of the Disease.—In the main, the morbid lesions are very similar, if not identical, in man and cattle. Yet a brief comparison of the disease as seen in the two species reveals, among others, these apparent differences, which may in reality be differences of degree rather than of kind.

First.—The disease runs a more insidious course in cattle than in man.

Second.—The formation and escape of tubercular pus is much more limited in cattle than in man. This is probably due to the marked tendency in cattle toward a limitation of

the morbid process by the formation of a dense, firm, fibrous, limiting membrane, surrounding such morbid processes.

Third.—The ulcerative condition so frequently met with in man is not so common in cattle.

Fourth.—Septicæmic conditions that so constantly accompany pulmonary tuberculosis in man are rarely seen in cattle, except in the very last stages of the disease.

Fifth.—The anæmia, rapid loss of flesh and strength, so constant in tuberculosis of man, are not seen in cattle, except in the latter stages of extensive morbid lesions.

Sixth.—Tuberculin has very little, if any, deleterious effect on cattle, whereas it is supposed to have a marked influence on the germ, arousing an activity in latent conditions of the disease in man.

Seventh.—Differences, though slight as they may at first appear, indicate that the cow is the natural harbinger of this germ ; or at least that nature has endowed cattle with much stronger powers of resisting the invasion of the tubercular bacillus.

If the disease is wholly or even largely distributed by tubercular people, why is it that in China the disease is quite prevalent among the wealthier classes, who are surrounded with the better conditions of life, while it is very rarely found among the poorer classes, who live, to use the expressive slang phrase, "any old way"? Why is the disease not transmitted from the wealthier to the poorer classes? Would it not be reasonable to expect that after it had once gained access to the haunts of these poorly clothed, illy housed, and precariously fed people of the poorer class, that it would spread among them with more rapidity than it would among those whose surroundings are better in every way, and less favorable to the development of the disease, except that the wealthier classes use the food products of the cow?

If the disease had been but recently introduced into this country by a few persons having contracted it in some foreign country, it would be easy to arrive at satisfactory conclusions,

but such is not the case, for the conditions, as relates to the disease and the two classes, have not materially changed for many years.

The only logical deduction that I have, as yet, been able to derive from these facts, is that the cow, in this case as least, is the principal factor in the spread of the disease. And what is true of this case should be equally true in others. Perhaps others may be able to offer a more satisfactory explanation.

Again, if the human tubercular patient is such an important factor in the transmission of the disease, why do not the permanent inhabitants of resorts for consumptives more readily contract the disease? Or why do not the tribes of Central Africa become infected from the coast tribes?

Would it not be reasonable to expect this process to go on until the disease would be as prevalent among the interior as the coast tribes?

It would appear from these facts that there is very little tendency for the disease to spread among those peoples who do not use the food products of the cow.

One of the most common, and perhaps the most fallacious argument that is brought forward in support of the theory of human transmission, is the theory that the seat of primary infection, or more properly speaking, the seat of the most frequent extensive morbid lesions, is an indication of the method of infection; or, in other words, that the seat of the morbid lesions points out the avenue through which the germs gained an entrance to the animal economy.

If we reason by analogy, it is at once apparent that the theory is misleading. Take for illustration, small-pox, measles, mumps, Asiatic cholera, bubonic plague, yellow fever, etc. These are bacterial diseases that are transmitted, or rather contracted, by inhalation. Yet in none of them are the morbid lesions confined to the air passages or the lungs; in fact, these organs are not affected, except as a complication of the disease proper.

Again, anthrax and blackleg of cattle, and glanders of the

solipeds, are usually contracted through the ingestion of contaminated foods or water; but the morbid lesions are not confined to the digestive tract; in fact, it is the exception to find seats of the infection in these organs, especially in the latter disease.

The question naturally arises, why should this theory apply to the tubercular bacillus so much more forcibly than to other organisms of a similar nature? Nor do laboratory experiments substantiate this theory as fully as we might reasonably expect.

It should be borne in mind that in artificial inoculation the bacilli are usually introduced into the animal economy in very much larger numbers at a time than in natural infection.

Is it beyond the limits of sound reasoning to suppose that if a large number of these germs are introduced at a given point that they will act as a foreign body that will produce more or less irritation, thereby forming a favorable nidus for the development of the germs and obstruct their entering the circulation? Whereas, in natural infection the germs are usually so few in number as to produce little or no irritation to a free surface; consequently, they would be much more likely to gain an entrance to the circulatory system. Therefore, we should expect a much greater per cent. of development of morbid lesions at the point of entrance in artificial than in natural inoculation.

My experience in post-mortem inspection leads me to believe that in cattle primary lesions of the lungs are comparatively rare. A careful necropsy will usually demonstrate that the primary focus or foci are in some of the lymph glands, and with these serving as extensive culture fields, from which the germs are carried to other parts of the animal economy by continuity of the parts and by the circulatory systems. This process of auto-infection, with probable reinfections from external sources, sooner or later results in extensive or generalized morbid lesions.

In swine the lymph glands, spleen and the osseous tissue seem to be the most frequent seats of primary foci.

It is evident from the above that the germ first enters one of the circulatory systems before finding a field suitable for its development.

If this be equally true in the human, as some post reports seem to indicate, it is very evident that the theory in question is erroneous.

In connection with this phase of the subject, I will cite the history of a case as given to me recently by a prominent physician who was called to treat what he had reason to believe was a case of chronic, or more properly speaking, simple tonsilitis in a woman. Ordinary treatment for this affection was prescribed, and the throat lesions rapidly subsided without rupture on the free surface; but the patient developed constitutional disturbances which proved to be tubercular meningitis that ran a remarkably rapid course, death taking place on the forty-first day from date of calling the physician to attend the throat trouble. This woman was of a tuberculous family, a brother having recently died of that disease.

Judging from the conditions I have seen in cattle, as above described, I am inclined to believe that this throat trouble was tubercular, and that instead of the tubercular products escaping by an opening on a free surface, as in previous attacks, it was absorbed, with the results as above stated.

Again, will the advocates of this theory please explain how it is that we have primary infection in the form of tubercular ostitis, arthritis and meningitis? If the germs do not enter the circulatory system, how do they reach these deep seated tissues? And if the germs do enter the circulatory system in these instances, are they not just as likely to enter it in other instances? And if they do enter the blood channel at all, are they not as liable to be carried to the lungs as from them?

One more thought relative to the spread of this disease by inhalation. It has been demonstrated beyond question, by a number of the leading bacteriologists of the day, that sunlight and atmospheric exposures will destroy most of the pathogenic micro-organisms. This seems to be especially true of the tuber-

cular bacillus, yet how often it is that physicians and others will write and talk about the dangers of contracting tuberculosis by inhaling the tubercular germs that are constantly floating in the air in connection with dust, etc. While there is no question but what the tubercular bacillus may often be found in quite large numbers in the dust of buildings and especially rooms that have been, or are, occupied by phthisis patients, it is equally true that outdoor air is rarely contaminated with these germs.

If the air is so impregnated with these germs as some would lead us to believe, would it not be reasonable to expect that we would have more or less wound inoculations in the bovine species, for wounds in cattle are very rarely kept antiseptic. And if we should get inoculations from this source, and the theory is true that the tubercular bacillus always leaves his path of entrance to the animal economy strewn with morbid lesions, we would certainly have more or less cases of local manifestation of the disease in cattle, the same as is sometimes seen in the human, and fully 90 per cent. of all adult cattle would thus become inoculated at some time. Yet so far as I know, there is not a single case of this kind on record.

No, gentlemen, when we talk about the constant spread of this disease through the inhalation of the germs in the outside air, we are simply clinging to the relics of an old, pernicious, bygone theory.

Several theories have been advanced to explain how immobile bacilli gain an entrance to the animal economy, but my time will not permit me to discuss this phase of the question, further than to say that while none of them have as yet been fully substantiated, some recent experiments seem to indicate that germs adhering to oil globules, as in meat and milk, may be readily taken up by the lacteals. When this point shall have been settled, it will undoubtedly clear up some mooted questions of to-day.

I am of the opinion that the tubercular bacillus usually enters either the blood of lymph systems as does other germs,

and is carried along until it reaches a field that presents favorable conditions for its development, provided it is not destroyed by natural forces before reaching such fields. The lymph glands, especially those of the splanchnic cavities, most frequently present favorable fields for the primary development, though this may differ somewhat with age, species, and the physical condition, not only of the animal economy, but with the various organs, as injuries of the osseous tissue, especially in the young emboli and stenosis of the small blood vessels, etc. The air vessels of the lungs, especially in man, may at times present favorable conditions, but these are exceptions, rather than the rule.

While it is quite generally agreed by the medical profession that there is more or less danger in the use of the food products of tuberculous animals, this phase of the question has never received the attention that its importance justly demands. There has been but little concerted action upon the part of the medical profession to prevent the spread of the disease through the use of the food products of tubercular animals.

It appears as though a large per cent. of the busy practitioners have, perhaps unintentionally, arrived at the conclusion that to control tuberculosis is beyond the power of man, and give the subject very little consideration, other than to prescribe such lines of treatment as promise the best results, entirely ignoring the fact that their patient is, perhaps, being daily reinfected through the use of contaminated foods.

It is evident from the almost unlimited lines of treatment that have been advocated, that curative treatment has received much more attention than has been given to prophylactic treatment.

Perhaps you are asking, what can be done to lessen the spread of the disease? In reply I would say that if the logical deductions of this paper were followed, all that would be necessary would be to stamp out the disease in the bovine species. But to assist in the good work, to hasten its accomplishment, and to obviate all danger of a possible error in the views pre-

sented, I would suggest the adoption of such sanitary precautions as may be justly enforced relative to tuberculous people and animals; for every tubercular animal is, to a greater or less degree, a disseminator of the tubercular bacillus, and I would especially urge the prohibition of the traffic in and sale of the food products of tuberculous animals, as may be accomplished by proper milk and meat inspection, as indicated in the following:

By the proper use of the tuberculin test and proper sanitary measures, the dairy can be freed and kept free from tuberculosis, and inspection properly carried out will prevent the sale of the flesh of diseased animals. But in order to accomplish this we must have laws enacted that will provide for such inspection and furnish the money with which to carry on the work; and before this can be accomplished, the general public must be educated to have a just appreciation of the dangers that constantly attend the use of all foods that may be contaminated with tubercular bacilli.

The Position of the Physician.—As physicians, you have it in your power to wield an immense influence for good in this field. Good results would soon be manifest if each physician would recommend to his patrons the use of, and use in his own family only such animal food products as have been properly inspected.

Each and every physician has more or less political influence which he should not fail to exert in behalf of wholesome legislation along these lines. This is a just proposition, because the question of stamping out tuberculosis, that is, the enactment of laws and the appropriation of money to carry on the work, savors largely of politics.

If the medical profession of the State would make a united effort in behalf of the suppression of tuberculosis in the dairy cattle of the State, it would not be long ere we would have good laws and plenty of money with which to carry on the work.

In conclusion, let me urge you to rouse from your lethargic state relative to this disease. Let all of us take an active part

in stamping out this, the greatest of all animal scourges, that we may feel that we have, in this instance at least, fulfilled our duty towards mankind.

BIBLIOGRAPHY.—(1) Paper by Prof. E. F. Brush, M. D., of Mt. Vernon, N. Y., before the New York Academy of Medicine, April 18, 1899, The Relationship existing between Human and Bovine Tuburculosis. (VETERINARY REVIEW, Vol. XIV, No. 11.)

(2) State Board of Health of New York, Fifteenth Annual Report, 1895.

(In compiling this paper, I have freely consulted all authorities at hand, and especially the two above cited.)

THE ARMY MULE.

Let others sing of the noble horse,
High-stepping, brave, and gay,
Who prances proudly o'er the course,
In his patrician way.
A humbler figure claims our song,
A victim of misrule,
The poor, oppressed, yet tough and strong
American army mule:
The long-eared mule,
Missouri mule,
The balking, biting,
Kicking, fighting,
Rough and rusty,
Tried and trusty,
Tough old army mule.

He's no prize beauty, and, beside,
He wasn't made for show.
The meat inside his leathery hide
Is gristlier than a crow.
But warring nations wait until
He comes across the sea
Before their armies move to kill
The blarsted enemy.
He's ugly, churlish, crabbed, glum,
And cross, and sullen, yet
He's won his crown of martyrdom
A thousand times, you bet!
That tough old mule,
Missouri mule,
That aw-he-hawing,
Kicking, jawing,
Bucking, biting,
Swearing, fighting,
Ugly, rancorous,
Rude, cantankerous,
Old, moth-eaten,
Weather-beaten,
Measly, piebald,
Glistening eyeballed,
Grouty, grumpy,
Rope-tailed, dumpy,
Darned old mule,
Missouri mule,
American army mule!

—*Chicago Tribune.*

BENEATH a grotesque photo of Dr. H. L. Ramacciotti, who sits beside the sick bed of a poor mule taking his pulse from the plantar artery of the off front leg, the Omaha *Daily News* has this to say: "Dr. Hugo L. Ramacciotti is a muchly known man about Omaha. He's been here for years—is the first veterinary surgeon to locate this side of the Missouri River—and has a reputation extending from New York to San Francisco. He is now city meat inspector and a leader among the Italians of the city. He is an active knight of Ak-Sar-Ben and his clever work at the initiations this summer called forth many words of praise."

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

TORSION OF THE UTERUS IN MARES.

By W. A. HECK, Maquoketa, Iowa.

Inspired by Dr. W. J. Martin's report of "Torsion of the Uterus" as published in the June REVIEW, I submit the following:

Case I.—At 2 P.M., June 7th, was called to see a 24-year-old bay mare, weight about 1100 lbs. Was past due to foal, but all the day she had acted strangely; and making no progress the owner grew uneasy and called help. Patient bright and strong and in good flesh. Would remain standing most of the time and ate grain and hay, but occasionally labor pains would come on, when she would lie down and strain. Nothing showing at vulva and no discharge. Vulva perhaps a little swollen. Examination soon revealed torsion of the uterus, the first case I had found in an experience covering a period of nine years. Unlike Dr. Martin's case the diagnosis did not bother me, as the spiral folds of the vagina were easily made out, showing plainly I had a case of left torsion. From my previous reading I had concluded rolling the animal in a recumbent position to be the most practical method of accomplishing reduction, consequently the casting harness was applied and the mare secured ready for action. Then with my arm in vagina and hand pushed as far into the cervix as possible, instructions were given for the animal to be turned from right to left over her back. After a few unsuccessful attempts she was turned in opposite direction, which seemed only to increase the trouble. It was a sunny afternoon and no shade, with the weather quite warm, and no one without experience can appreciate the enormity of such a task. Finally the twist was so modified that with great effort I could insert my hand into uterus. Then I thought "success is mine," only to be chagrined some time later by the mare suddenly expiring while I was still at work. Post-mortem immediately: Much extravasated blood about cervix, with inflammatory invasion to uterus and peritoneum. The foal was extra large and somewhat swollen. Am sure mare could not have lived even though I had accomplished delivery.

Case II.—Morning of June 21st, called 8 miles in country to see 9-year-old bay mare, 1100 lbs. Presented similar symptoms as No. 1. On examination found left torsion of uterus. Profiting by my first experience resolved to try a different pro-

cedure. Animal was cast as before. Instead of passing arm into vagina, it was passed into rectum well up under the gravid uterus. (In this way a pretty good grasp can be had on a limb of fœtus, even through the folds of intestine and uterus.) The mare lay on her left side on a sloping piece of ground. When all was ready instructions were given to quickly turn mare over on back to right side; at the same time I lifted the womb, and, much to my surprise, nearly righted the organ at the first turn. The foal was quickly delivered alive and both mare and colt did well. Now, whether or not it is better to direct our efforts from rectum in such cases I can't say, but am inclined to think it is. In this case, especially when mare's rump was turned down hill, the arm could be gotten entirely under the bulky and heavy uterus, and in this way one can certainly come nearer keeping the organ stationary while the mother is being turned than could be possible from vagina. In fact, I believe fully as much good can be accomplished by simply turning the mare as can be done by vaginal manipulations. Again, I am satisfied that the sooner we get to work at these cases the better will be our success. The fact of a living foal being in the womb may have made some difference. I think it did. I am not convinced that torsion of the uterus, to any considerable degree, can exist very long without pathological alterations and death to fœtus. Strangulation of vessels with consequent extravasations tend to complicate matters.

If called to a case of uterine torsion where the mare had suffered colic one, two, or three weeks previous I should hesitate very much to give it as my opinion that the twist occurred concurrently. Post-mortem conditions in No. 1 create grave doubts whether an animal would go very long after the gravid uterus turns over without manifesting it in some manner. No history of colic could be had in either case. They were both left twists, and as near as I could make out the uterus had turned half over. I am inclined to believe in both cases the torsion occurred the night previous to my visit.

It would seem from recorded cases in "Fleming's Obstetrics" that cows are much more susceptible to uterine torsion than are mares, while our observation teaches us that horses are much more inclined to roll than cattle.

While succeeding splendidly with my second case the memory of my first still lingers, and I am not at all anxious for another. I hope some one who has a successful method of treating such cases will "speak out."

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

ABDOMINAL SURGERY (*Continued*).

II. Cæsarian Section.—The removal of the fœtus by making an incision into the abdominal wall of the mother, was first performed upon human subjects after the death of the mother for the purpose of saving the life of the fœtus; and later the operation was performed upon the mother while still alive for the same purpose; recently, however, as the methods of operating improved, the procedure became an approved method of saving the life of both mother and child. The Greeks were familiar with this method of removing the fœtus from the womb while the mother was still alive (*Heister's System of Surgery, Vol. II.*). The earliest case reported with any details of the operation was performed in the latter part of the fifteenth century, by a spayer of Seigerheusen, who operated upon his wife after a number of midwives had exhausted their resources; the spayer extracted the child by making an incision into the abdomen and saved the life of the mother and child. A full account of the case is found in the appendix to Roussetus's works, which was written by Gaspar Bauhin some time during the 16th century. The operation in early years was generally performed by midwives; and, in the absence of modern surgical methods, naturally proved unsuccessful, which caused surgeons who were familiar with the sequelæ following surgical operations under such conditions and knew their inability to obviate them, to disapprove the operation; but, since the surgeon has adopted asepsis, and learned to combat the unfavorable sequelæ, the operation has resumed its place among the practical ones.

Indication for Cæsarian section may be satisfactorily enumerated as follows, viz.:

1. Pelvic malformations.
2. Malpresentations.
3. Multiparity.
4. Monstrosities.
5. Pseudo-pregnancy.
6. Extra-uterine pregnancy.
7. Rupture of the uterus.
8. Torsion of the uterus.

1. PELVIC MALFORMATIONS. — Pathological conditions which interfere with the removal of the fœtus may be located in the soft structures of the pelvic region, or in the bones that form its skeleton (Fig. 21); besides, parturition may be ren-

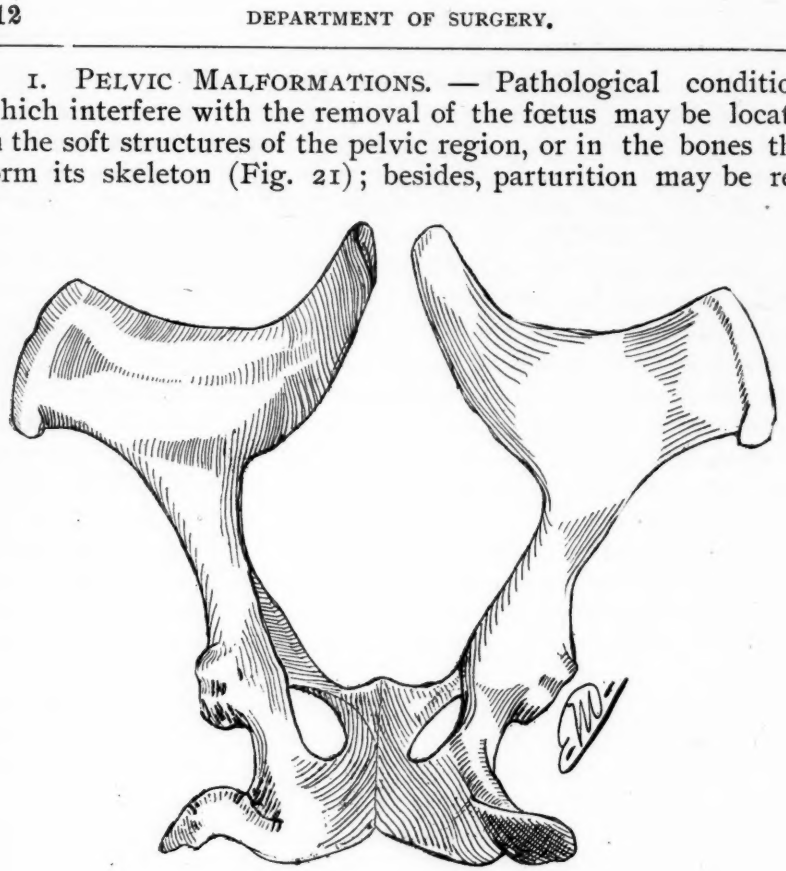

FIG 21.
NORMAL PELVIS OF A MARE.

dered impossible by congenital deformities. The conditions that can be classed under malformations may be mentioned as follows, viz.:

A. Tumors of the soft structures of the pelvis.
B. Pelvic osteophytes.
C. Pelvic constrictions.
D. Fractures of the pelvis.
E. Pelvic deformities.

(A) TUMORS OF SOFT STRUCTURES OF THE PELVIC REGION may be sarcomatous, cancerous or melanotic; the melanotic are generally found in old gray mares and when located around the rectum, vulva or vagina, or in the connective tissue surrounding the pelvic canal, they reduce the size of the opening through which the fœtus is removed and in some instances entirely obstruct the passage to the uterus. Tumors are often

found in the vagina and os uteri of cows and bitches; and, occasionally in the mare; and when known to exist the true condition should be ascertained by a manual or digital examination, and if found to involve the cervex or completely close the anterior part of the vagina, the fœtus should be removed by Cæsarian section.

(B) PELVIC OSTEOPHYTES (OR OSTEOMATA).—Osteophytes located on the superior and lateral surfaces of the pubis or ischium are often serious obstructions; and, those that involve the shaft of the ilium (Fig. 22), especially when they are located in the lateral walls of the pelvic cavity. The presence of such bony growths are not common in the mare, excepting in those that have recovered from fractures of the pelvic bones (Fig. 24); in the cow the condition is more common, and is

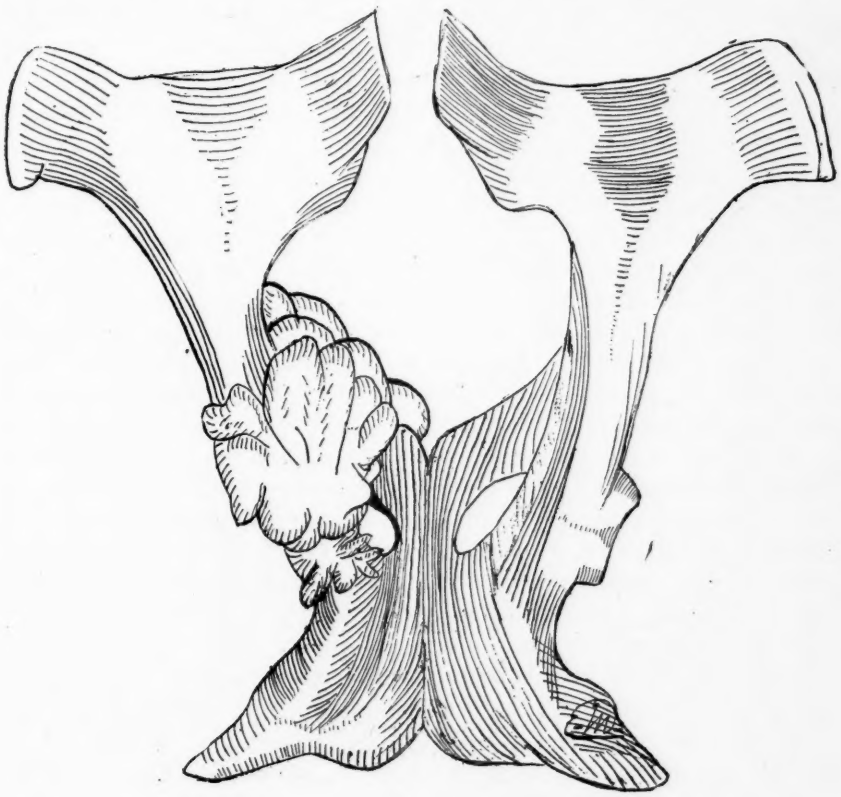

FIG 22.

PELVIC OSTEOPHYTE RESULTING FROM TRAUMATIC COXITIS.

still more frequently observed in the bitch; in some instances these osteomata do not make delivery impossible, but difficult, although when they obstruct the passage and make parturition impossible the fœtus must be removed otherwise. In the mare all other means of delivering the fœtus must be attempted before resorting to Cæsarian section, but in no case should the operation be deferred until the patient is exhausted and unable to withstand the surgical shock.

(C) PELVIC CONSTRICTIONS.—It is seldom that these constrictions, without fœtal complications, demand surgical interference; if all other conditions are normal delivery is generally possible though difficult, but when complicated with malpresentations or monstrosities they are serious conditions. This conformation is often confined to certain breeds and usually consists of a general reduction of all dimensions of the pelvis; however, careful observations have revealed to the obstetrician several varieties of these constrictions, which for our purpose they shall be considered as follows, viz.:

(*a*) General constriction of the lumen of the pelvic canal.
(*b*) Constriction of sacro-pubic diameter.
(*c*) Constriction of the transverse diameter.

(*a*) *General Constriction* of the lumen of the pelvic canal is usually confined to certain strains of domestic animals and is marked by a reduction in the size and the change in the conformation of the bones that form the skeleton of the pelvis; the constriction is such that it uniformly reduces all the diameters of the pelvic canal and invariably is the cause of maternal dystokia and when associated with some fœtal abnormality may make parturition impossible.

(*b*) *Constriction of the Sacro-Pubic Diameter.*—The cause of this reduction may result from an abnormal position of the pelvis; such as in improper inclination; or, a depression of the anterior portion of the ilium. The condition may also result from an abnormal conformation of the sacrum; *e. g.*, the posterior extremity of the sacral portion of the vertebra may be depressed (*kyphosis*); or the entire bone may be depressed; besides there is another, though not very common in domestic animals, but deserves to be mentioned in this connection; this is a curvature of the sacrum which directs its posterior extremity to one side (*scoliosis*); it may be caused by a contraction of the muscles of one side and is generally of a rheumatic origin (*scoliosis rheumatica*), although in some cases the condition is osteopathic.

(*c*) *Constriction of the Transverse Diameter.*—The cause of this constriction is about the same as those mentioned above and are generally common to certain breeds; in such constrictions the lateral walls of the pelvic canal approximate, either by the change in the conformation of the pubis and ischium, or by their abnormal size.

Animals of this conformation should not be used for breeding purposes, for either of the above mentioned conditions increases the danger of dystokia and especially when bred to large males.

(D) FRACTURES OF THE PELVIS.—The most common fractures of the pelvis are those of the external angle of the ilium, and the least that of the two pubes and ischia. In the horse, a fracture of the ischium often results from a fall or a kick; and occasionally a fracture of the shaft of the ilium (Fig. 24). which is usually done by crushing. Pelvic fractures in general are caused either by a fall, a blow, or by crushing; and as there is no means by which they can be placed in their normal posi-

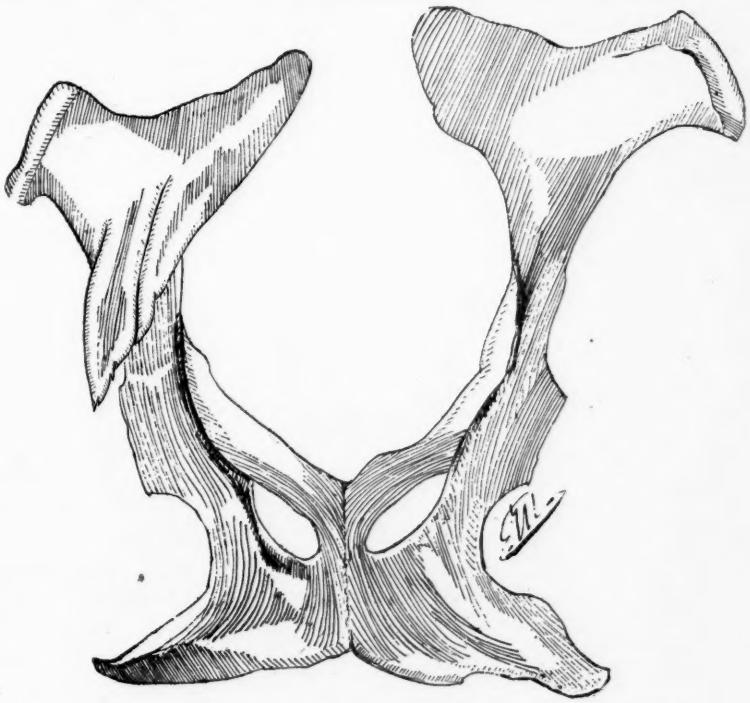

FIG. 24.
FRACTURE OF SHAFT OF THE ILIUM.

tion, the union results in an abnormality which can be detected by a depression of the external angle of the ilium or croup; or, by a vaginal or rectal examination and in many cases the diagnosis can be confirmed by a history of the case. Animals (female) that have had a fracture of the pelvis should not be used for breeding purposes without ascertaining whether the dimensions of the pelvic opening have been reduced or not.

(E) PELVIC DEFORMITIES.—Although pelvic deformities are not so common in domestic animals as in the female of the *genus homo*, we do, however, recognize the following varieties, viz.:

(*a*) Congenital deformities.
(*b*) Anomalous deformities.
(*c*) Accidental deformities.
(*d*) Lordosis and kyphosis.

(*a*) *Congenital Deformities* are those that exist from birth and in domestic animals are generally confined to certain strains

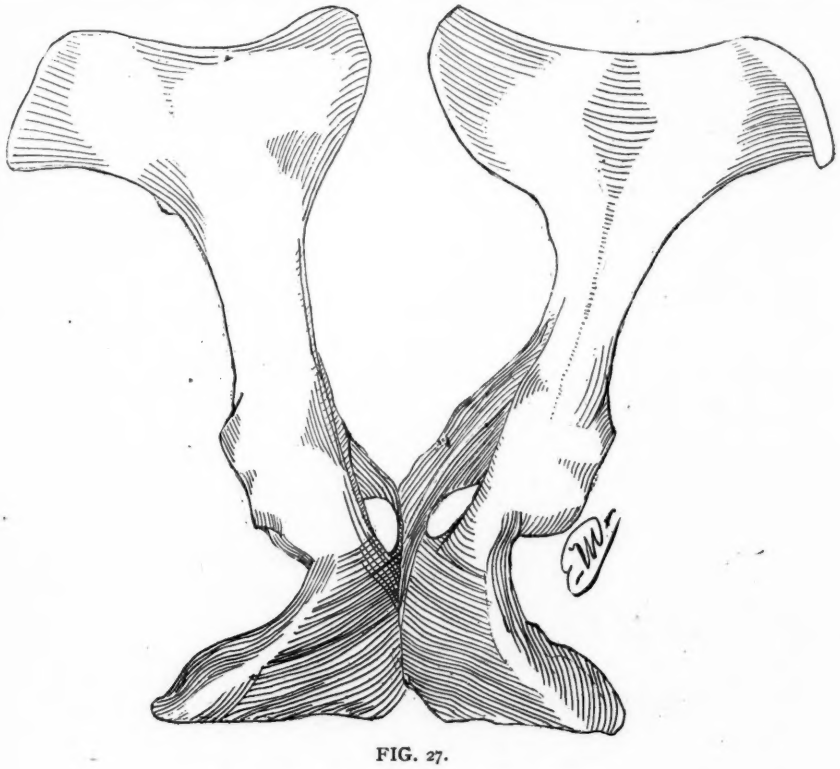

FIG. 27.

AN ANOMALOUS PELVIC DEFORMITY.

that have been improperly or carelessly bred; they are usually marked by a narrow pelvis, sharp croup and a depressed external angle of the ilium. Animals of this conformation are very unfavorable subjects for breeding purposes, because dystokia usually accompanies parturition.

(*b*) *Anomalous Deformities* of the pelvis are due to an abnormal development or the non-development of the bones that surround the pelvis. (Fig. 27.) This condition is more common in dogs and pigs than in large animals, and the exciting cause of this deformity is usually rachitis, osteomalacia, osteomyelitis, ostitis or osteoporosis. *Ostempyesis* may cause a condition that will interfere with parturition, especially when the inflammation extends into the soft structures surrounding the pelvic opening. Animals suffering from osteomalacia or rachitis may be affected with an abnormal curvature of the bones (*osteoclampsia*), especially when the sacrum is involved; when it is depressed at its anterior extremity (lordosis) the condition is not so serious as when the posterior extremity is depressed. Any disease of the bones of the pelvis may alter their relation; arrest their development; or change their form to such an extent that it will so lessen the size of the pelvic opening that parturition is impossible.

(*c*) *Accidental Deformities.*—Animals that have had fractures of the bones of the pelvis are generally unfit for breeding purposes, but all deformities resulting from such accidents do not make parturition impossible; a fracture of the external angle of the ilium may change the relation of the bones sufficiently to cause dystokia and yet not require Cæsarian section; a fracture of the shaft (Fig. 24) is often more serious; and those of the pubis and ischium which reduce the size of the pelvic inlet are the most serious obstacles in parturition.

(*d*) *Lordosis and Kyphosis.*—Saddle-backed animals in which the deformity involves the sacrum are sometimes unfit for breeding purposes, especially when the sacrum is greatly depressed and reduces the sacro-pubic diameter of the pelvic outlet; this, however, is not a very common condition and one that is easily determined by a rectal or vaginal examination.

Arched-backed animals (*kyphosis*) that have an abnormal position of the sacrum may also reduce the size of the pelvic opening and cause maternal dystokia, and in such cases the posterior extremity is depressed and reduces the lumen of the canal; this conformation is always indicated by the position of the croup. Both of the last mentioned conditions when com-

plicated by fœtal abnormalities are serious; and the true conditions should be ascertained, and if the life of the mother can be saved by embryotomy the importance of the operation should not be overlooked by the obstetrician; and should the patient survive it should never be again used for breeding purposes.

2. MALPRESENTATIONS.—Parturition is sometimes rendered difficult by the fœtus being in such a position that it can not pass through the pelvic outlet. This difficulty is more common in quadrupeds than in bipeds. The anatomical difference of the pectoral arch adds to the difficulty resulting from an anterior malpresentation. The dorso-sternal diameter of the thorax is longer; the motion of the scapulo-humeral articulation is more limited; and the rotation of the anterior limb is much less in quadrupeds than in bimana. The difference resulting from this skeletal and muscular peculiarity of domestic animals adds to the difficulty in rectifying these malpresentations. The posterior malpresentations are fully as difficult to rectify as those already mentioned; the increased length of the longitudinal axis of the fœtus often makes mutation impossible. Transverse presentations are often very troublesome, especially the dorso-lumbar, when accompanied with some maternal deficiency; these complications must be handled judiciously, and when mutation is impossible the obstetrician must resort to the course indicated. All malpresentations must be rectified by retropulsion and either rotation or version; but, if this is impossible the fœtus must be removed either by embryotomy or Cæsarian section.

3. MULTIPARITY.—Multiple pregnancy in uniparous animals may in some cases be the cause of some form of dystokia, or accident common to pregnancy; such as rupture of the uterus (*hysterorrhexis*), or hernia of the uterus (*hysterocele*). These accidents are not confined to multiparity, but nevertheless are sometimes associated with it; but dystokia, however, frequently occurs in multiparity. It is not an uncommon thing to find a suspension of labor after the delivery of the first fœtus when uniparous animals bear twins; and, when such suspension is continued for any length of time, the death of the fœtus retained most invariably follows; however, there are exceptions to this; for example, when each fœtus is enveloped in its own fœtal membrane, it can remain in the uterus after the expulsion of the first one until the uterus has regained its tenacity and physiologically prepared itself for the second expulsion; but, if the fœtuses are enveloped in a common

fœtal membrane, the delivery of the first fœtus usually interferes with the distribution of nutrition to, and the removal of excretions from the remaining fœtus, which will soon cause its death. In studying this form of pregnancy we recognize the following varieties of multiparity, viz. :

(A) Isolated.
(B) Associated.
(C) Inclusive.

(A) *Isolated Multiparity.*—This variety of multiparity is that in which each fœtus has its own fœtal membranes. When the condition is such, one or more may be retained indefinitely after the delivery of the first fœtus. We do not mean, however, that they can be retained for weeks or months as in superfœtation, but for a reasonable length of time (hours or even a day or two) after the birth of the first. In multiple cases of this variety, it frequently happens that the fœtuses are unequally developed, and this unequal development often leads to the death of one of them, either caused by compression resulting from the excessive development of the other or the unequal distribution of the blood supply. If they are equally developed each fœtus is generally smaller than ordinary, and parturition is usually easy if not accompanied with other complications ; but, numerous complications may be associated with this condition that may require surgical attention, and the course adopted should be governed by the indication, but surgical interference should not be delayed until the vitality of the mother has been so impaired that it could not withstand the shock.

(B) *Associated Multiparity* includes that variety of multiparity in which all fœtuses are found in one fœtal membrane common to all of them, occurring in the uterus at one time. In such instances the delivery of one fœtus requires the immediate removal of the remainder. When the placenta is common to all, they are generally equally developed, and if the presentation is not complicated beyond correction, delivery is usually comparatively easy ; but, if unequally developed and attended with malpresentations that cannot be rectified, the condition is more serious ; however, these cases should not be subjected to Cæsarian section without exhausting all possible means to rectify the condition.

(C) *Inclusive Multiparity* is not a common condition, at least those examples which are completely enclosed in another fœtus. Occasionally an undeveloped fœtus may be found enveloped in a larger one, and sometimes one is found only partly

embedded in the other (*monstrosity*). This condition of things, though not very common, may be the cause of much trouble in delivering the fœtus, especially when the fœtus is large or the presentation faulty; and, if the conformation of the mother is such that parturition is impossible, it is advisable to remove it by surgical means.

4. MONSTROSITIES.—The term monstrosity is generally applied to a fœtus that presents some defect in its conformation; the condition may be organic, anomalous or pathological, and may involve a part of or the entire organism of the fœtus. The subject of monstrosities to teratology, which is the part of morphology that treats of the deviation in the development of embryos, has been well studied and thoroughly presented by Gurlt, a noted German veterinarian, and Geoffroy Saint-Hilaire, an eminent French zoölogist and comparative anatomist. Both of these authors have given to the profession a complete classification of these abnormalities, which can be used to a good advantage in the study of obstetrics; but, for our purpose we shall divide them into but two classes, viz.:

(*a*) Single monstrosities caused by excessive growth.

(*b*) Monstrosities resulting from the union of fœtuses.

(*a*) *Single Monstrosities caused by Excessive Growth* of the fœtus may extend through the entire body (*macrosomia*), and have a well developed symmetrical body, or may consist of an excessive development of any region, such as an abnormal development of the head (*megalocephalus*); however, one abnormality is usually accompanied by another or even more: *e.g.* an abnormal development of the head with an abnormal heart; or, the non-development of some portion of the body with the abnormal development of an organ. This condition (*macrosis*) of the fœtus, whether local or general, is frequently the cause of dystokia, and when complicated by some maternal abnormality or deformity, may make delivery of the fœtus impossible.

(*b*) *Monstrosities resulting from the Union of Fœtuses.*—The most common monstrosities of this class are those with two heads (*cephalodidymus*) (Fig. 28); and those with a double posterior extremity and but one head (*dipygus*); another very common example of these consists of a single head with a double trunk and posterior extremity (*cormo-melodidymus*); besides these double monstrosities, there are a number of triple (*trigeminal*) that are occasionally found in domestic animals; the most common of these triple unions are those with

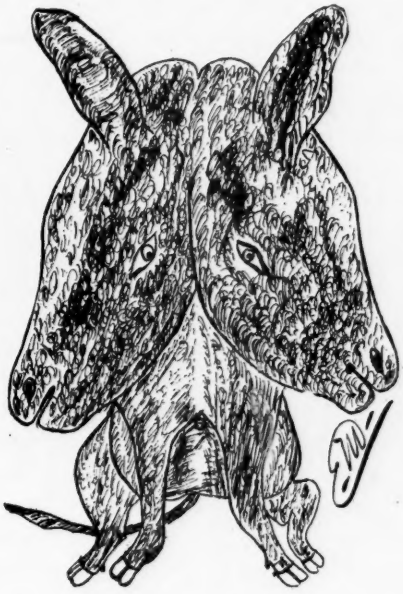

FIG. 28.

SYNCEPHALIAN MONSTROSITY, FROM THE McKILLIP OBSTETRICAL CLINIC, JANUARY, 1899.

three heads (*cephalotridymus*), and those with three bodies (*somstotridymus*). There are a number of other varieties which the veterinarian frequently finds, that are caused by the union of fœtuses, which cannot be delivered even by embryotomy. Most of these monstrosities are larger than a large fœtus; this, with their conformation makes it impossible to pass the fœtus through the pelvic outlet; and to dissect them while in the cavity is a difficult procedure; therefore, the most appropriate method of removing them is by Cæsarian section. When the veterinarian has ascertained that the fœtus is a monstrosity, the operation should not be delayed; the chances of recovery from such an operation are diminished by deferring it. *Procrastination deprives the surgeon of success* in such instances.

5. PSEUDO-PREGNANCY.—This is a term that is applied to an anomalous development of some structureless object in the uterus, which is a result of conception. To class tumors of a cancerous or sarcomatous origin as pseudo-pregnancy, would not be considered correct by obstetricians; but, to determine to a certainty whether the condition resulted from conception or not is often difficult, unless the animal is one that is never left

without an attendant. The conditions that may be taken for pseudo-pregnancy may be named as follows, viz.:

(*a*) Uterine cysts or moles.

(*b*) Hydrometra.

(*c*) Uterine tumors.

(*a*) *Uterine Cysts or Moles* may be caused by an early degeneration of the embryo encased in its enveloping membranes. This condition is not very common in mares; occasionally observed in cows and frequently in sows. They may vary from 10 centimeters to 20 or 30 centimeters in diameter. Those that we have observed upon post-mortem were in animals that suffered no inconvenience from the condition; but should such a structure be suspected as being the exciting cause of some systemic disturbance it should be removed.

(*b*) *Hydrometra* is a condition characterized by the presence of fluids in the uterus. This occurs more frequently in the bitch than in the cow or mare. The character of the fluid may vary from a thin transparent serous fluid to a thick purulent semi-fluid, and as it collects the uterus becomes distended and the abdomen enlarges. It is seldom that the fluid remains in the uterus for more than one-half of the period of gestation without some or all of it being expelled; in such cases the condition can often be relieved without surgical interference, but when the walls are involved they become œdematous and thickened; and, even if the embryonic structure is expelled, the condition may persist; medication may prove useless; injection of antiseptics or astringents into the uterus may be ineffective; and, consequently, there remains no other resort but surgical interference. This, however, should not be classed under Cæsarian section, for in such cases the fœtal structure may have been expelled; but occasionally part of it and the fœtal membrane becomes organized and attached to the walls when their removal by the vaginal route is impossible. To curet the uterus of a quadruped through the vagina is not a practical procedure; therefore the better plan is to proceed as in Cæsarian section; remove the fœtal membranes and all abnormal structures, and curet the uterus and irrigate it thoroughly, then close the incision properly; but, if the pathological condition is such that there is danger that this treatment will prove ineffective, the uterus should be removed (*hysterectomy*).

(*c*) *Uterine Tumors.*—Tumors that involve the uterus may be found in any part of it, and when of extreme size may cause an external appearance resembling pregnancy, and when the

condition cannot be ascertained to a certainty without surgical interference it is advisable to proceed as in Cæsarian operation.

6. EXTRA-UTERINE PREGNANCY.—In this form of pregnancy the fœtus is developed outside of the uterus. There are several varieties of this form of pregnancy and they are generally named according to their location. Dr. Fleming, in his work on obstetrics, gives a thorough classification of extra-uterine pregnancy and carefully describes each form; but for our purpose we shall not study them so minutely, but will consider the following classes, viz.:

(*a*) Abdominal pregnancy.
(*b*) Ovarian pregnancy.
(*c*) Tubal pregnancy.
(*d*) Interstitial pregnancy.

(*a*) *Abdominal Pregnancy* is that form of gestation which is characterized by the development of the fœtus outside of the uterus and in the abdominal cavity. The symptoms of this form of pregnancy are varied, modified and often misleading. In the early development of the fœtus and while the fœtus is still alive, surrounded by the fluid enclosed in the fœtal membranes, the abdomen may appear distended, as in intra-uterine gestation; but, when the fœtus is dead and the fluids are absorbed, the abdominal distension may appear only in the region of the fœtus, which may appear round, and when manipulated convey the impression of being a large indurated mass more or less fixed. This condition is not very common in large animals, but is found frequently in dogs and pigs; and should the condition interfere with the function of the viscera or impair the health of the animal, it should be removed.

(*b*) *Ovarian Pregnancy.*—It is sometimes very difficult to determine whether the fœtus is located in the ovary (Fig. 29-8) or the abdominal cavity outside of the ovary. As it develops its weight causes the ligament of the ovary to elongate and allow the embryonic structure to descend as far as if outside of the ovary; but even if the condition cannot be determined, it should be treated as in abdominal pregnancy.

(*c*) *Tubal Pregnancy.*—In this form of pregnancy the ovum is developed in the Fallopian tubes (Fig. 29-10). When the ovum is developed in the tubes its enlargement prevents it from entering into the uterus and sooner or later it will cause some disturbance which will require its removal.

(*d*) *Interstitial Pregnancy.*—This form is characterized by the development of the ovum in the interstitial tissue between

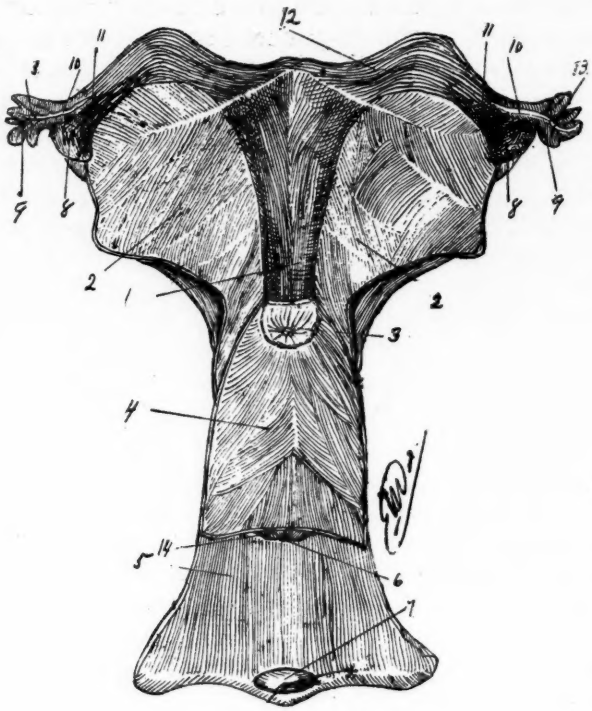

FIG. 29.

NON-PREGNANT UTERUS.

1, Body of uterus; 2 broad ligament; 3, os uteri; 4 vagina; 5, vulva; 6, meatus urinarius; 7, clitoris; 8, ovary; 9, fimbriated extremity of Fallopian tubes; 10, Fallopian tubes; 11, ligament of the ovary; 12, horns of uterus; 13, osteum abdominale; 14, fold of mucous membrane.

the coats that form the walls of the uterus or Fallopian tubes. As a matter of course a fœtus thus located cannot be removed without an operation. This, however, is not a very common occurrence, but when thus developed are generally located in the interstitial tissue of the Fallopian tubes (Fig. 29-10) or the cornua of the uterus (Fig. 30-e). The operation for removing embryonic structures thus located does not require the uterus to be opened; only the outer coats are incised and the structure removed. The remainder of the operation should be such as the indications demand.

7. RUPTURE OF THE UTERUS.—Rupture of the uterus is an accident that frequently occurs during parturition. It may be caused by the operator in his attempt to rectify a malpresentation in order to facilitate delivery; it also may be caused by the fœtus perforating the walls of the uterus; or it may result from

some pathological condition of the walls of the body (Fig. 30-a) which weakens them to such an extent that they cannot withstand the tension brought upon them by the contractions of the organ during parturition. Besides a complete rupture of the walls there should also be taken into consideration a partial rupture of them ; such as the laceration of the mucous membrane and part or all of the muscular coat, forming a kind of hernia. Either of the above mentioned conditions may make parturition impossible ; but when the walls are completely ruptured the condition is serious ; the fluid in the uterus will pass through the opening into the peritoneal cavity and cause an inflammation (*peritonitis*) if the cavity is not opened and irrigated thoroughly. Hæmorrhage is a factor that must not be overlooked when the uterus is ruptured, even if the fœtus is removed through the vagina. When the rupture is complete and the fluid of the uterus has escaped into the abdomen the only course to pursue is to open the cavity ; remove the fœtus ; suture it ; irrigate the cavity and close it.

8. TORSION OF THE UTERUS.—This is a condition that is difficult to diagnose and one that may occur frequently in large domestic animals. It consists of a twist of the uterus on its longitudinal diameter ; the twist may be partial or complete, usually however it is only partial. Torsion generally follows colics in animals that are in the last month of pregnancy ; or, those that have been cast or fallen during the period mentioned. When the condition cannot be rectified by the common means usually adopted by obstetricians the operation in question should be performed.

Operation.—This operation is generally undertaken with one of three objects in view, viz. :

1. To save the life of the fœtus when the mother is beyond recovery.

2. To save the life of the mother when the fœtus is dead or deformed.

3. To save both mother and fœtus.

1. *To Save the Life of the Fœtus* when the mother is beyond recovery. When the patient is in such a condition that it cannot stand the shock that accompanies such an operation, or when exhausted or injured to such an extent that it cannot live and death is inevitable, the obstetrician's effort should be directed to the life of the fœtus.

The patient should be cast and placed in a dorsal position, a crucial incision made in the floor of the abdomen, the uterus

incised and the fœtus removed, and as soon as this is accomplished the parent should be put to death.

2. *To Save the Life of the Mother* when the fœtus is dead or deformed. In this the patient must be carefully anæsthetized, and placed in the left lateral recumbent position, with the right posterior limb extended backward. The hair must be clipped and the surface surrounding the place chosen for the incision shaved; the incision is made through the skin and abdominal muscles, which is followed by incising the peritoneum, using all the precautions possible to prevent the viscera from being injured.

The incision should be made at a point located from 7 to 10 centimeters below the right external angle of the ilium, and extend downward and forward for a distance of 15 to 20 centimeters, as the case may require. The uterus (Fig. 30-a) is then

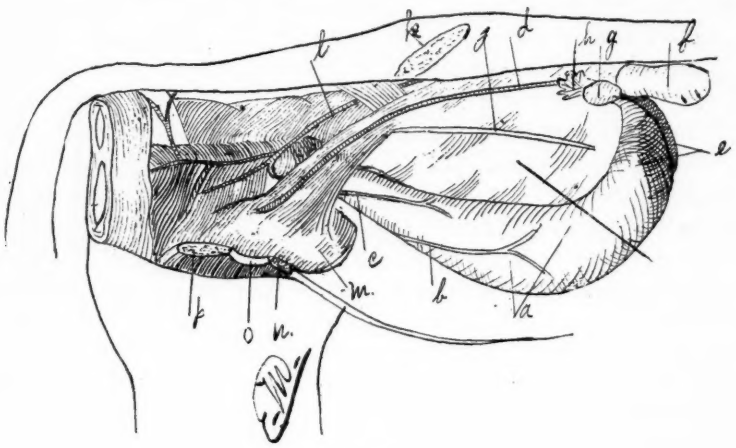

FIG 30.

POSITION OF UTERUS OF THE MARE.

a, body of uterus; b, uterine artery; c, uterine branch of vaginal artery; d, ureter; e, horns of uterus; f, left kidney; g, ovary; h, fimbriated portion of Fallopian tube; i, broad ligament; j, round ligament; k, ilium; l, internal pubic artery; m, bladder; n, pubis; o, obturator foramen (section of); p, ischium.

brought to the opening into the abdomen and carefully incised, with all the necessary precautions taken to prevent the fluid from entering the peritoneal cavity; the fœtus and fœtal membranes are then removed and the uterus sponged and thoroughly washed with antiseptics; following this the incision is closed by applying the Czerny-Lembert suture. (*See Intestinal Sutures.*) The treatment of the external incision and the after-care should be the same as mentioned under CELIOTOMY.

If the patient is a mare she should not be allowed to lie down for three or four days, and, if necessary, an improvised

sling should be applied in such a manner that the weight will not rest upon the abdomen. The cow may be treated in the same way; and when either are allowed to lie down they should lie upon the left side. In the bitch, the incision may be made in the median line, and the procedure following this step is much the same as mentioned above. After the operation she should be muzzled and secured in such a manner that she will be unable to interfere with the stitches.

3. *To Save the Life of the Mother and Fœtus.*—When the operation is performed with this object in view, the surgeon's efforts must be directed to both mother and fœtus. The technique of the operation is the same as when only the life of the mother is at stake; the abdomen is opened in the same manner and the uterus opened in the same place, but with special care not to injure the fœtus, and when removed it should be given to an attendant instructed to ligate the umbilical cord and give it the care and attention required. The incision into the uterus and the one in the abdominal wall must be carefully sutured as soon as the fœtus and its membranes are removed and the uterus properly cleaned. Strict aseptic precautions must be taken in every step; hæmorrhage must be completely arrested, arteries ligated, arterioles taken up, and torsion applied and capillary hæmorrhage arrested by irrigation before the sutures are applied. The sequelæ that may follow can be expected in the following order: the first is shock, and will require considerable attention; second is secondary hæmorrhage, which is generally very serious in large animals and must receive attention as soon as observed; third, peritonitis and metritis, which require cold packs; and besides these there are a number of other conditions, such as local infection, septicæmia, and pyæmia, which often follow the operation and must be treated as the indications demand. (*See Celiotomy, After-Treatment.*)

This operation was successfully performed by C. J. Rix, M. R. C. V. S., Royal Veterinary College, London, upon a bitch on June 22, 1900. Two pups were removed; one was injured in attempting to deliver it through the natural passage and died; but the other one and and the mother survived. (*See Clinical Articles, The Journal of Comparative Pathology aud Therapeutics, September, 1900.*)

SURGICAL ITEMS.

Oxychlorine.—A new antiseptic compound containing 56 per cent. by weight of oxygen and 6 per cent. by weight of

chlorine, feebly united with potassium, barium and sodium, is being introduced to the veterinary profession by the United Pharmacal Company of Chicago, under the above proprietary name. Physically it resembles the granular salines, and like them is freely soluble. It is recommended both in solution and as a dry powder for the treatment of suppurating wounds and indolent lesions of any kind. The theory upon which its efficacy is based, and which seems to be borne out by observation, is that in the presence of living tissues the compound gradually liberates its oxygen and chloriue; the former entering and thus nourishing the tissues, while the latter disinfects them. The union of the oxygen and chlorine with the other elements is said to be so unstable that when the natural affinity of the tissues extracts the oxygen from the compound the chlorine is liberated in the proportion of 6 parts to 56 parts of oxygen, thus preventing cauterization. The manufacturers make the strong claim that oxychlorine will promptly disinfect as well as nourish any infected wound without destroying a single cell. It is non-poisonous as well as non-irritant.—(*L. A. M.*)

That the close relation of the velum and larynx of horses is a factor in the cause of many laryngeal coughs is demonstrated by the fact that staphylotomy performed upon two horses immediately cured their cough of several years' standing. Staphylotomy consists of a division of the soft palate in the median line from its posterior border to the palatine bone. (See Williams-Pfieffer's "Surgical Operations.")—(*L. A. M.*)

If any veterinarian has ever substituted vasectomy or resection of the spermatic cord for castration, we would be pleased to report a correct statement of the operation and its results in connection with castration, which will appear in the "Department of Surgery" in some future number of the REVIEW. Due credit will be given each operator for his effort.—(*E. M.*)

When the abdominal cavity or the uterus is irritated after abdominal operations, there is danger of poisoning from toxic substances such as carbolic acid or bichloride of mercury used as antiseptics. The best solution to employ in this procedure is sterilized water or a saline solution at a temperature not exceeding 110 degrees Fahrenheit.—(*E. M.*)

AT a recent veterinary association meeting twelve members handed the Secretary their subscriptions to the REVIEW. This is recorded for the reason that it is exceptional, while it should be the rule.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By Adolph Eichhorn, D.V.S., New York City.

Sugar and Glycerin as Ecbolics in the Practice of Obstetrics.—An instructive article recently appeared in the *Progrès Agricole* in which Veterinarian Elvire discussed the important properties which sugar and glycerin possess, especially when used in indolent cases of parturition, and also in cases of retained afterbirth. The author mentions instances where the farmers, as soon as they noticed an abnormality in the progress of labor, began the use of one of these remedies, to hasten parturition. They administered these remedies chiefly in warm alcoholic drenches (wine, beer, whiskey), as their use had great influence, especially in the first stage of the expulsion, and when the appearance of the afterpains are delayed or unsatisfactory. The strong stimulating effect of sugar in uterine contraction is not as yet well known, but was also considered at the gynæological department of the University of Geuf. The author confirms this favorable and almost positive action in animals. The dose for horses and cattle is 100 to 200 grammes, in a solution with or without alcohol, to be given especially in cases where the first labor pains are weak, or where exhaustion of the animal is noticed; but there are many other demands for it in parturition where it can be used with great success. In cows and in other ruminants the solution is greatly lost in the different stomachs; therefore, it is advisable to administer the solution per rectum, which, previous to the injection, is to be emptied. Glycerin is given in the same dose; it is absolutely harmless, and it is advisable to saturate cotton in the solution, and fill the rectum with it in that way.

Treatment of Carcinomas with Electricity [*Dr. J. A. Rivière, Paris*].—At the International Congress of Medical Electrology and Radiology, which was held in Paris from July 27th to August 1st, 1900, Dr. Rivière, of Paris, reported the treatment of cancers, and claimed that the same can be cured through special mono and bipolaric streams of high tension. The judicious application of this stream brings about the following effects: (1) A thermo-electric-chemical influence, whereby the neoplastic tissues are thrown out; when the parasitic theory is admissible through its actinic rays, the microorganisms and their toxins become annihilated. (2) A tropho-

neurotic curative action, which restores the vital processes to normal, at the same time favoring phagocytosis, whereby the general health becomes improved. The author adds that this special method of electric treatment cures and avoids the recurrence of the affection when applied in time. Further, he says, electricity remains the only applicable remedy in tumors of malignant character, which cannot be operated upon.—(*Berl. Thierärztl. Wochenshr.*)

THE USE OF SHELL MEMBRANE OF HENS' EGGS IN COVERING GRANULATING SURFACES [*Prof. Schüller*].—Up to the present time, wounds in which the covering over with skin in a natural way was retarded, the method generally used was transplantation. But there are cases where it is impossible to graft skin from the patient, and also where it is impossible to use the skin from other persons. For such cases the author recommends a compensation from the animal kingdom, which is always easy to procure in perfect and in an aseptic condition, and which is very easily applicable, containing undoubtedly epithelial material, and when used in the proper way for covering granulating surfaces depacts it in an extraordinarily easy manner. This is the shell membrane of a hen's egg. The employment of the shell membrane is as follows: After breaking the fresh egg and the eversion of the contents, the membrane is quickly detached from the shell in as large a piece as possible; care should be taken not to touch or crush it, and then applied with the internal side (the one facing the white of the egg), to the granulating surface, which was previously cleansed and thoroughly dried. After this procedure it is secured by a simple dressing consisting of gauze and cotton. It is not essential that the pieces of the shell membrane should cover or come in contact with the edges of the normal skin; the principal point is the firm adherence to the granulating surface. Antiseptic powders or liquids are to be avoided, as they will injure the young epithelia. The wound must be in a thoroughly aseptic condition, all infection removed, and naturally the granulation must be complete. In changing the dressing, which the author generally does in four days and sometimes sooner, the shell membrane is easily detached, under which is noticeable a whitish or blueish white epithelial layer. The pieces covering the edges of the skin generally adhere a little longer. This can be tried in veterinary practice, as there are many opportunities, especially among the smaller animals.—(*Berliner Thierärztl. Wochenshr.*)

A SPONTANEOUS HEALING OF A WOUND OF THE ŒSOPHAGUS [*Michalik*].—The author was called to see a foal with the history that it would not take any food and had suffered from a very bad dyspnœa for the last few days; also, a swelling made its appearance on the neck, which had in the meantime gotten soft, and was opened by the owner, followed by a discharge of pus mixed with food. On examination the author found the foal emaciated, with difficult rattling breathing. On the left side about 15 cm. from the larynx in the region of the jugular groove he found a hard swelling, having the size of a double fist, and on which a smooth incised wound of about 3 cm. was noticeable, which on exploration disclosed a cavity which contained well masticated food. He tried in every way possible to remove this mass of food, but could not do so successfully, as the cavity was too large. As the removal of the mass was only partial, the presence of pus could not be established. The œsophagus could not be reached on account of its distance. After deglutition it was noticeable that the cavity filled up with food, therefore he had either an abscess situated on the œsophagus and which caused the rupture of the œsophagus, or it may have been caused by the owner while opening the abscess and injuring the œsophagus; but taking into consideration the anatomical condition, this was considered quite improbable. The author did not seem to think a cure possible, and recommended the animal destroyed. But as the owner was anxious to try all that could possibly be done to save the animal, he recommended slow irrigations of the abscess cavity with a ½% solution of creolin several times a day, and a diet consisting chiefly of sloppy food. Two days later the owner came back with a report that the foal would hardly drink anything, and that all the liquid and food came out through the abscess opening. The author then recommended dry food to be tried, with the hope that the animal might be able to retain at least some of it. After three days an improvement was noticed. A large portion of the dry food was able to pass into the stomach, and only a small portion returned through the wound. A few days later the owner reported a complete recovery of the foal, and after 10 days all food, both liquid and dry, passed down through the œsophagus in a natural way. The swelling and the wound then kept getting smaller and smaller until all signs of it disappeared.—(*Deutsche Thier. Wochen.*)

"ERADICATION OF TUBERCULOSIS IN THE UNITED STATES OF AMERICA."—Under this heading the *Berliner Thierarzt.*

Wochenschr. contributes an extensive article, in which is described minutely the measures taken in the different States of our Union for the prevention and eradication of this malady among cattle. After discussing the importance of these measures, the article ends as follows: "All these facts are sufficient to prove that in the United States the danger of spreading of tuberculosis in cattle, and which also includes the health of human beings, are appreciated by the State and city officials, and by them an energetic fight was started to overcome this disease. It is evident that the United States in regard to this condition are a great deal further advanced than we. The measures of the States and these efforts of the larger cities should be appreciated in procuring their inhabitants milk free from the germs of tuberculosis. Would it be possible to introduce these regulations in our cities?" This ought to make us feel proud of ourselves, as it is another evidence that the advancement in veterinary medicine in this country and the education given in our schools is acknowledged and appreciated by our European colleagues. And, first of all, the credit for all this is to be given to the Bureau of Animal Industry, which in the last few years has done such marvelous work in regard to meat inspection and investigations of infectious diseases.

FRENCH REVIEW.

THE POST-MORTEM DIAGNOSIS OF RABIES IN THE DOG [*By Prof. Nocard*].—This subject is of capital importance to the veterinarian, for upon its correctness depends the lives of those who have been bitten. When it is a dog dead after the natural march of the disease, the post-mortem ordinarily reveals signs which permit a conclusion of the existence of the disease; yet, even in this case, it often happens that the necroscopical signs are absent, and consequently if the veterinarian has not seen the dog while alive, and has not been able to follow the progress of the disease, it is impossible for him to tell with certainty if the dog was rabid or not. These negative results of post-mortem, exceptional when looked for in animals that have died from the disease, are far less frequent when searched in animals killed during the development of the disease. For instance, it is common not to find any of the ordinary signs of rabies at the post-mortem of dogs killed in public roads because they have bitten some one, animals or persons; and this fact is so much more serious that most often these dogs are entirely

unknown, and no information can be obtained upon their ways of acting previous to the accident. To conclude from the absence of all apparent lesion to the non-existence of rabies, would mean that the persons who were bitten need no treatment and they would be exposed to contract the disease. During the last few years several persons have died with rabies because the negative result of the post-mortem have given them a false security. Then, again, if inoculation of the bulb will tell with certainty whether the dog was mad or not, this certainty is not obtained before fifteen or twenty days: it would be imprudent to await the result of the inoculation to begin treatment, as in the majority of cases it would be too late. For this reason, no doubt, without having a sure mode of diagnosis, we never fail to recommend the antirabic treatment, whose perfect innocuity needs no more proof. It can be easily conceived with what interest veterinarians heard of the communications of MM. Van Gehuchten and Nelis, and with what enthusiasm they went to work, not to confirm the exactness of the facts advanced by such authorized specialists, but to find out in what measure the method they recommend can be practically applied. If it was true that, hereafter, in a few hours, we could with certainty and in every case, tell that such suspicious dog is rabid or not, the problem would be solved; numerous victims might be in the future delivered from all the anxiety deriving from the fact of having been bitten, as well as the loss of time, unnecessary expenses, etc. It was not possible to doubt the existence of the lesions described by MM. Van Gehuchten and Nelis in the cerebro-spinal ganglions of mad dogs; no more than there had been any expressed upon the truth of the alterations mentioned by M. Babes in the nervous centres; the high competency of those authors was a sufficient guaranty of the correctness of their presence. But the questions might be asked: (1) If these lesions, constant in the mad dog, are special to rabies? (2) If they are not observed in other infectious diseases in the nervous centres? (3) Lastly and specially, if they exist, sufficiently defined, to allow any doubt, in all periods of the disease? It must not be forgotten that the saliva of the dog is virulent from the beginning of the disease, even before it has manifested itself by the first symptoms which make its presence suspected. If not, the method of MM. Van Gehuchten and Nelis, so precious by its simplicity and its rapidity, would lose all practical importance; we would fall back into our uncertainty, and, as in the past, acknowledge the neces-

sity of immediate treatment for all those bitten by dogs only suspicions. The experiments carried out with that object by MM. Cuitlé and Vallée, of the Veterinary School of Toulouse, gave the following results: "Our researches," say these authors, "have according to the indications of Van Gehuchten and Nelis, been applied upon the plexiform ganglions of the pneumogastric nerves. After fixation to the sublimate, hardening in a series of alcohol and in acetone, inclusion in paraffine, the thin sections were colored with polychrom blue of Unna and differentiated in the 'glycerincethromischung' of Grübler. In nine dogs dead with rabies, we have found the alterations of the nervous cells and of the endothelial envelopes described by MM. Van Gehuchten and Nelis; even in the less altered parts of the ganglion, the envelopes were the seat of a marked leucocytar infiltration. To this date, we have not observed anything like it in the ganglions of healthy dogs or of those that have died with various diseases. But do those ganglionary lesions establish themselves prematurely? Would they be found in dogs killed during the course of the disease? That was the most important question to solve, as it is specially in those conditions that the diagnosis remains uncertain; it is almost always dogs that are killed because they have bitten some one and are brought to the veterinarian for post-mortem; and the researches of Nocard and Roux have proved that the saliva is virulent, not only after rabies is confirmed, but 24 and 48 hours before the apparition of the first symptoms. With the object of solving this serious question, we have inoculated six dogs, taking care to make the infection as natural as possible. To this effect, each one of these animals had injected in the semi-tendinosis muscle half a cc. of an emulsion made with the brain of a dog dead with *rage des rues* (street rabies); these dogs were to be destroyed at various periods of the disease. To-day, 63 days after inoculation, three are *indemne*, the three others have become rabid, and more or less soon after the apparition of the first symptoms; they were destroyed. The results obtained are as follows: *Dog No. 1.*—Very old; dumb rabies after 17 days of incubation; killed 17 hours after the apparition of the first rabid signs and at the very outset of the paralysis. At the examination of the plexiform ganglions of the pneumogastric, all the cells are healthy; in few sections and in very rare places, little centres of pericapsular infiltrations are detected. *Dog No. 2.*—Raving rabies after 23 days of incubation; killed after the first rabid signs were observed.

The plexiform ganglions are entirely healthy. *Dog No. 3.*—32 days of incubation; killed twelve hours after appearance of paralysis. Superb ganglionary lesions; half of the cells are destroyed; the whole ganglion is infiltrated with leucocytes. Besides those we have examined the plexiform ganglions of a shepherd dog killed during an access of raving madness in which he had bitten several dogs and sheep. The ganglionary lesions were insignificant: a little pericapsular infiltration here and there; it would be impossible by the single examination of the sections, to tell that the dog was rabid. Yet the diagnosis is clinically certain and inoculation of the bulb gave rabies to the inoculated rabbits. From these researches, M. Nocard concludes that the histological remains like the necroscopical diagnosis. When the result is positive, which is the rule, in both cases, when the dog dies by the natural evolutions of the disease, one may affirm that the dog was rabid; but when the result is negative, which is frequent, when the dog is killed immediately after he has bitten, one cannot affirm that the dog was not rabid; the diagnosis remains uncertain, and the strict duty of the veterinarian is still to advise those that are bitten to resort to Pasteur treatment.

LARYNGEAL TUMOR IN A COW [*By M. Mathis*].—This animal, about 12 years of age, had been abandoned by the owner as being in a state of advanced tuberculosis. She was suffering with loud roaring, much marked in inspiration, and quite weak in expiration; her respiration was now and then accelerated, percussion of the chest gave an exaggerated resonance all over the lungs; auscultation of the trachea and larynx justified the localization of the roaring at the larynx; in listening to the chest nothing could be heard, no roaring nor even the respiratory murmur. With these exceptions the animal is in most satisfactory condition. The diagnosis of tuberculosis was discarded for want of symptoms and by the use of tuberculin; and that of laryngeal trouble, made out by tracheotomy, which had to be performed for fear of asphyxia, was confirmed, when previous to being killed the larynx was opened as for the operation of arytenectomy and a tumor was discovered on the right vocal cord, of non-tubercular nature, the size of a pigeon's egg, closing almost entirely the glottic opening, formed of whitish fibroid tissue.—(*Jour. de Med. Vet. and Zoötechnie.*)

DYSTOKIA IN A MARE—ANTERIOR PRESENTATION, HIND LEGS ENGAGED IN THE PELVIS, ANTERIOR LEGS ABSENT [*By M. Husson*].—"My mare is in labor and her fœtus is presented

normally," said the owner when calling on the author. "The head and feet are present, but, notwithstanding all efforts, the fœtus cannot be delivered." On making his examination Mr. Husson by opening the vulva detected the point of the nose and the feet engaged in the pelvis, but in introducing his hand he soon found out that the feet belonged to the hind legs, the fore legs he could not trace. After pushing back the hind legs, the fœtus was delivered. It weighed 63 kilograms and had no fore legs. Their skeleton consisted of only one bone, the scapula, each one of them ending in a stump, except on one, where a small articulated piece existed, representing the humerus.—(*Jour. de Med. Vet. and Zoötechnie.*)

ECTOPY OF THE RIGHT KIDNEY IN A SOW [*By M. X. Gavarry*].—This peculiar condition is not as well known in veterinary medicine as it is in human. This case was observed in a three-year-old sow, in proper condition of fat. The left kidney was in its normal position, the right was placed behind about twenty-five centimeters from it. The afferent and efferent vessels had their normal length; the right renal artery took its origin from the posterior aorta at the point where this divides to give off the iliacs. The right kidney was normal in weight and in size, and was surrounded by adipose tissue. During life the animal never showed any signs of illness or disturbance by the abnormality, nor was gestation or parturition ever disturbed by it.—(*Jour. de Med. Vet. and Zoötechnie.*)

CORRESPONDENCE.

A REPLY TO RESOLUTIONS OF CENSURE FORMULATED BY THE ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION (OF NON-GRADUATES), AND PUBLISHED IN THE OCTOBER NUMBER OF THE "REVIEW."

CHICAGO, Ill., Oct. 13, 1900.

"Let him that is without sin cast the first stone."

With all our boasted evolution and moral progressiveness there still can be found large chunks of cussedness in human nature, particularly that form of it that prompted the words quoted above and uttered two thousand years ago, and I verily believe if that admonition had been addressed to the members of that committee on resolutions, every mother's son of them would have reached for a stone, for they cannot by any mode of reasoning familiar to them find a single flaw in their physical

or mental make up; but it is surely a sad commentary on their intelligence to note the fact that they, a society of non-graduates, few if any of them eligible to practice under the act but for its time limit for registration, should be the first to throw stones at the Board for allowing so many of their kind within the fold.

To one not possessed with any sense of the ridiculous their professed solicitude for the elevation of the profession would be pathetic. How like Burns' "Holy Willie" they could set out the sins and iniquities of their competitors in practice and with what pathos they would recount the wonderful qualifications and righteousness of themselves, tearing the character of their neighbors to pieces in sneaking, unmanly letters, not one of which was supported by proper affidavits, and usually post-scripted: "As a man we are good friends, and I wouldn't want my name mentioned, but it would be a shame to grant him a license." Uriah Heep was a saint compared to some of these men of good reputation and known truth and veracity in their actions towards their fellow practitioners. When instructed how to proceed in cases they wished to protest, they would answer the board by letters of abuse; they cry out there are too many of us. We agree with them. If the legislature had passed such a law ten years ago their association would have very few members and the State would have been much the better for it.

As to our "violation of the letter and spirit of the law." According to their idea of the letter of the law, "there would be more honor in its breach than in its observance." The spirit of the act, as shown by its time of grace to the non-graduate practitioner, did not intend to deprive any citizen of the State, who had been practicing the required time, of his right to earn a living for himself and family; it does intend that new comers shall have the proper qualifications before they be permitted to practice. In examining non-graduates after the time limit had expired, the Board only exercised its privilege to satisfy themselves that the candidate was as represented by his credentials. As to the requirements of the law in that examination, all candidates were so examined and marked according to the judgment of the examiner. To demand a strictly technical examination of old practitioners, non-graduates, on the subjects mentioned in the act, might be proper according to the wisdom of the members of the I. V. M. and S. Association, but it was not so construed by members of the Board, neither did we think

that the spirit of the law called for the expulsion from the State of an old practitioner because he applied for a license a few days or weeks later than the members of the I. V. M. and S. Association. We have no doubt that the Board has been imposed on by false affidavits and misrepresentations, and that we have made mistakes of omission and commission, but if men of immoral character and bad reputations have been granted licenses it is due to the moral cowardice of the complainants, who, knowing these facts, did not take the proper steps to prevent it, but contented themselves by sending unmanly, sneaking, semi-anonymous charges against a neighboring rival in practice. The charge of monetary greed is about as well substantiated as the rest of it. Five dollars a day while on duty would be a tempting bait, and good reason for any crookedness to a member of the I. V. M. and S. Society, I have no doubt, but it is not considered an extravagant emolument to the regular practitioner who has paid for his education.

We would in all probability have ignored anything coming from that body, but that the profession at large might not be aware of the true standing of this society and confound its deliberations with the State Association of qualified veterinarians. For any personal reflections embodied in their resolutions, I forgive them, as "To whom little is given, little can be expected."

JAMES ROBERTSON, D. V. S.

SOCIETY MEETINGS.

MISSOURI VETERINARY MEDICAL ASSOCIATION.

The ninth annual meeting of this State Association opened at 9 A. M., Oct. 3, 1900, in the hall of the Board of Education building, St. Louis, Mo. The following veterinarians were present: Drs. E. J. Netherton, W. B. Welch, R. H. Carswell, T. V. Farmer, S. L. Shaw, E. Lee, S. Stewart, L. D. Brown, Chas. Doerrie, T. E. White, V. J. Andre, H. Hempelman, R. A. Kammerer, W. S. Cass, F. W. O'Brien, W. E. Martin, T. F. Arnold, T. J. Menestrina, L. M. Klutts, D. W. Elliott, S. E. Phillips, R. C. Moore, Chas. Ellis, H. Bradley, J. M. Phillips, B. F. Kaupp, G. A. Roberts, H. B. Piatt, M. McNally, E. J. Forman, D. C. Barnett, J. O. F. Price, W. H. Meadors, T. B. Pote, W. F. Heyde, C. Miller, J. W. Connaway and J. G. Slee. Among the guests were H. J. Waters, Dean and Director of the Agricultural College and Experiment Station of Missouri;

Alex. Maitland, member of State Board of Agriculture, and others.

The following veterinarians made application and were elected to membership: Drs. V. J. Andre, R. H. Carswell, T. J. Menestrina, E. J. Netherton, L. D. Brown, S. L. Shaw, E. B. Shaw, and D. F. Luckey.

The morning session was devoted to the discussion of State legislation. A bill was drafted and a committee appointed to push it in the next session of the State legislature. A committee from the Missouri Valley Veterinary Association was accepted to assist this committee.

At 12 o'clock it was moved, seconded and carried to adjourn to visit the plant of the St. Louis Dressed Beef and Provision Co., under the direction of Dr. W. S. Cass, where the guests were afforded the opportunity to observe the methods of government inspection of cattle, hogs, sheep and calves, and their methods of stamping and tagging such meat products. A few interesting cases which had been condemned were examined, and many other things of interest were seen.

At 1.30 P. M. the party was conducted to the Delmonico, at Manchester Road and King's Highway, where they were banqueted in royal style by the veterinarians of St. Louis, Dr. Chas. Ellis acting as toast-master.

At 3 o'clock a surgical clinic was held at Dr. R. A. Kammerer's hospital. Dr. R. C. Moore, of Kansas City, demonstrated a new method of administering chloroform by a specially arranged nose bag, and performed the operation of median neurectomy.

An operation by Dr. E. J. Netherton upon a carcinomatous growth affecting the eye of a horse.

Dr. Moore, assisted by Drs. Ellis and Andre, performed the operation of arytenoiderraphy upon a "roarer."

An operation of tenotomy for "stringhalt" and several other operations and clinical cases to be diagnosed were presented, which lasted until 6 o'clock.

At 7.30 P. M. the meeting was again called to order, when the following papers were presented: Dr. H. Bradley, "Acute Bowel Trouble"; Dr. Chas. Ellis, "Needed Veterinary Legislation in Missouri"; Dr. E. Brainard, "Influenza"; Dr. T. J. Menestrina, "Canine Distemper"; Dr. J. W. Connaway, "Parturient Paresis in the Cow."

Under "Reports of Cases" Dr. J. M. Phillips reported an interesting and unusual case in which the teeth in a dog thirteen

years old became very loose, making extraction necessary; some months afterward three new teeth developed.

At 11.30 o'clock the meeting adjourned.

At 9 A. M., Oct. 4, the meeting was again called to order by the President, Dr. Bradley, when the following papers were offered: Dr. C. Miller, "Infectious Ulcer of Vulva of Cattle"; Dr. J. W. Parker, "A Bacillus from Infectious Vulvar Disease of Cattle"; Dr. L. M. Klutts, "Laminitis"; Dr. F. W. O'Brien, "My Experience with Schmidt's Treatment of Parturient Apoplexy."

Dr. S. Stewart gave a good and interesting account of the last meeting of the American Veterinary Medical Association.

The following officers were elected for the coming year:

President—Dr. F. W. O'Brien.

Vice President—Dr. J. W. Connaway.

Secretary and Treasurer—Dr. B. F. Kaupp.

A motion was made, seconded and carried, to hold the next meeting in Kansas City, October, 1901.

At 12 o'clock the meeting adjourned, and the party proceeded to the St. Louis Fair, where an enjoyable afternoon was spent. About dark the party disbanded, ending the most successful meeting in the history of the association.

B. F. KAUPP, D. V. S., *Secretary.*

THE NEW YORK STATE VETERINARY MEDICAL ASSOCIATION.

The October REVIEW gave an extended and enthusiastic report of the unprecedentedly successful meeting of the New York State Veterinary Society held at Ithaca, Sept. 12–13 last. That report made it clear that in point of interest to those present it has not been surpassed in the history of association work in America. It was preëminent in some ways, which have been emphasized largely since the meeting, or rather expression given to its force, which serve to show its substantial, enduring character.

The great increase of attendance involved the appearance of many new faces—many veterinarians who had not attended the society meetings before, but who will assuredly attend again. They largely united with the society and all entered intimately into the life of the meeting. The definite policy of the meeting, clearly announced in advance, that veterinarians who had not been members, or those who had been but had dropped out, were heartily urged to attend and participate, had an excellent

effect and everybody felt throughout the influence of common professional fraternity.

While each veterinarian in attendance showed by his assiduous attention his deep interest in the meeting, and those having an opportunity at the close gave free expression to the profit it had been to them. One of the most gratifying evidences of enduring influence of the meeting is the numerous letters which have been received from members who hurried away toward the close of the meeting without opportunity for personal expression, but upon reaching home took occasion to express their gratitude by writing back. This shows that what they heard and saw left an impression which endured until they reached home.

Others who failed to attend have expressed their regrets, and some in distant States have already sent assurances of their intention to be present at the meeting at Ithaca next year.

REVIEW readers, and especially those who attended, may be interested in the final outcome of the patients operated upon at the clinic.

The gelding upon which Dr. Corrigan performed caudal myectomy for gripping of the reins, was driven home the same day, has done well and necessarily ceased to grip the reins.

The colts castrated by Drs. Cowie and Gay each recovered without incident.

One of the cows spayed by Dr. Jewell made the bad record of the clinic. The one which behaved so badly by constantly lying in the stocks showed no evil effects from the operation, fatted nicely and has been sent to the butcher. The other cow which offered no resistance, became infected and died from septic peritonitis after three days. Autopsy failed to reveal any error of a mechanical kind and the fatality was necessarily referred to some error in asepsis.

The vicious mare owned by Dr. Huff, spayed by Dr. Ide, and caudal myectomy performed by Dr. Fisher, exhibited no inappetence, fever or inconvenience, and was driven home, 90 miles, in about a week after the meeting. Dr. Huff writes: "The mare is all O. K., no more foolish actions, drives as nice as she can, does not squeal any more in the stable nor urinate when I speak to her in the barn or on the road . . . am well pleased."

The vicious mare spayed by Dr. Stone recovered like the other without evidence of inconvenience and travelled 60 miles home six days later, and like Dr. Huff's mare is gentle and kind.

The repulsion of diseased molar, with removal of the external alveolar wall with artificial drainage of the pus-containing sinuses through the nostril, has recovered satisfactorily. Those who saw the case will remember the bulging of the face, the fœtid odor, the repulsive nasal discharge and the poor condition of the animal. The fœtor ceased in a few days, as soon as the wounds in the bone could begin to granulate. The nasal discharge ceased immediately, the wounds healed promptly, the animal was returned to regular work and looks and feels better than for a long time prior to operation.

Next year when the association meets at Ithaca it will find a better arranged clinic, at least as extensive and instructive as the one just past, and without duplicating the cases of this year. We hope that veterinarians will suggest clinical operations they desire to see next year and that more members volunteer to assist in them. In any case the meeting will be superior to the one held this year, the degree of superiority to depend upon the advice and assistance of New York veterinarians.

W. L. W.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

President Butler has made the following appointments of Resident State Secretaries for 1900–1901:

Alabama—L. Van Es, Mobile; *Arizona*—J. C. Norton, Phœnix; *British Columbia*—Johnson Gibbins, 623 Granville St., Vancouver; *California*—Fred. E. Pierce, 724 Webster St., Oakland; *Colorado*—Charles Gresswell, Boston Bld., Denver; *Connecticut*—R. P. Lyman, 997 Main St., Hartford; *Cuba*—R. J. Stanclift, Puerto Principe; *Delaware*—H. P. Eves, 507 W. 9th St., Wilmington; *District of Columbia*—J. P. Turner, Washington; *Georgia*—N. P. Hinkley, Atlanta; *Hawaiian Islands*—W. T. Monsarrat, Honolulu; *Illinois*—E. M. Nighbert, Mt. Sterling; *Indiana*—J. R. Mitchell, Evansville; *Iowa*—W. A. Heck, Maquoketa; *Kansas*—W. H. Richards, Emporia; *Kentucky*—J. W. Jameson, Paris; *Louisiana*—W. H. Dalrymple, Baton Rouge; *Manitoba*—W. J. Hinman, Winnipeg; *Maryland*—L. A. Nolan, Baltimore; *Massachusetts*—Benj. D. Pierce, 27 Sanford St.. Springfield; *Michigan*—G. W. Dunphy, Quincy; *Minnesota*—J. N. Gould, Worthington; *Mississippi*—J. C. Robert, Agricultural College; *Missouri*—W. S. Cass, 2826 Dayton St., St. Louis; *Montana*—Stewart W. McClure, Helena; *Nebraska*—J. S. Anderson, Seward, Nebr.; *New Hampshire*—Lemuel Pope, Jr., 101 State St., Ports-

mouth; *New Jersey*—J. Payne Lowe, 19 Bloomfield Ave., Passaic; *New York*—Wm. Henry Kelly, 195 Western Ave., Albany; *North Carolina*—A. S. Wheeler, Biltmore; *North Dakota*—T. D. Hinebauch, Tower City; *Nova Scotia*—W. Jakeman, Halifax; *Ohio*—T. Bent Cotton, Mt. Vernon; *Ontario*—John W. Groves, Hamilton; *Oregon*—Wm. McLean, 328 Fourth St., Portland; *Pennsylvania*—E. M. Ranck, 422 N. 41st St., Philadelphia; *Quebec*—Chas. H. Higgins, 6 Union Ave., Montreal; *Rhode Island*—J. M. Armstrong, 96 Derrance St., Providence; *South Carolina*—George E. Nesom, Clemson College; *Tennessee*—Geo. R. White, Nashville; *Texas*—M. Francis, College Station; *Virginia*—E. P. Niles, Blacksburg; *Washington*—S. B. Nelson, Pullman; *West Virginia*—F. P. Ruhl, Fairmont; *Wisconsin*—G. Ed. Leech, Milwaukee.

President Butler has also appointed the following committee on Pharmacopœia: Dr. W. J. Martin, Kankakee, Ill., chairman; Drs. E. L. Quitman, Chicago, Ill., and W. G. Clark, Marinette, Wis.

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular meeting of this association was held in the city of Waterville, Oct. 10th, the President, Dr. A. Joly, in the chair. A large and representative gathering of members from all parts of the State made this one of the best meetings the association has ever held.

After roll-call, reading of minutes of previous meetings, etc., by the Secretary, Dr. Salley read a paper on "Torsion of the Neck of the Uterus," which was discussed by Drs. Joly, Blakely, Russal and Freeman.

Following this came reports of cases, which were freely discussed, at considerable length.

The next meeting will be held at Augusta, in January.

F. E. FREEMAN, V. S., *Secretary.*

THE OHIO STATE VETERINARY ASSOCIATION

will meet in annual session during the first half of January, 1901, at the Ohio State University, exact date not yet decided. All veterinarians of Ohio are especially invited to make arrangements to meet with us, and if not members are invited to join us.

Membership fee, $5.

W. H. GRIBBLE, *Secretary,*
Washington C. H., Ohio.

NEWS AND ITEMS.

DR. TAIT BUTLER, President of the A. V. M. A., has removed from Indianapolis, Ind., to Cudahy, Wis.

THE ONTARIO VETERINARY COLLEGE opened the session of 1900–1901 on October 10th with an address by Principal Smith before a large class of students.

THE WISCONSIN SOCIETY OF VETERINARY GRADUATES is actively engaged in prosecuting offenders under their recently acquired practice act, and is meeting with some success.

A CIVIL SERVICE EXAMINATION for the positions of inspectors and assistant inspectors under the Bureau of Animal Industry, was held at New York, Oct. 23.

RECENTLY a weanling mule was sold for $76, and numberless sales of adult hybrids at $500 and $400 per team are being recorded.

CRESCEUS recently trotted a mile in 2.04 at Cleveland, Ohio, placing himself firmly on the throne of trotting stallions, and seriously menacing the world's trotting record of 2.03¼, so lately made by that great gelding The Abbott.

DR. H. FEE, Waterloo, Iowa, graduate of the Ontario Veterinary College, class '87, is dead. He was a member of the Iowa State Veterinary Medical Association and a successful practitioner.

DR. J. WILLIAM FINK, who has been filling the position of assistant to Dr. R. W. Hickman, B. A. I., New York, has been transferred to Washington, for duty under Dr. V. A. Noorgaard, Chief of the Division of Pathology.

DR. EDWARD R. SQUIBB, of Brooklyn, founder of the well-known manufacturing drug house of E. R. Squibb & Son, is dead at the advanced age of 81. He was a man of the highest integrity, and his products are everywhere synonymous with purity and excellence.

FIELD MARSHAL VON WALDERSEE, Commander-in-chief of the army of the allies in China, has had shipped for his personal use in the Orient, two fine American saddle horses, purchased from S. T. Harbison & Co., of Lexington, Ky. They cost in Kentucky about $1500, which will be greatly increased by the expenses of transit. Since the Germans have ever boasted of their own bred army chargers, we may take it as evident that the American saddle horse is deemed superior.

CAPT. R. MARSHAM, of the English Army, located at New Orleans, La , has written several times to the REVIEW, asking

for veterinary surgeons to take charge of cargoes of mules and horses from New Orleans to South Africa. The terms offered were $250, first-class passage to New Orleans, expenses while there, passage to the Cape and back to place of residence in America.

A NEW theory is being exploited by a Texas stockman regarding the spreading of Texas fever infection among cattle. It is now said that the matter from the diseased heels of cattle suffering from the fever spreads the germs and if some lotion could be discovered or compounded to heal the feet or make them at least aseptic, all danger would be done away with.—*Breeder's Gazette.*

THE "CLIMAX" RUBBER HOOF PAD, made by the Consolidated Hoof Pad Co., of 18 Vesey Street, New York, stands today in the front rank, having reached this position among its competitors through its scientific construction and the use of a high grade rubber. In shoeing with this pad one comes very near to nature's scheme in the physiology of the functions of the foot. When shod with the "Climax" the bearing on the hoof is perfect, the pressure being on the frog and wall of the hoof (no sole pressure), and consequently insuring perfect circulation and a healthy condition. Owing to the high grade rubber used, the "Climax" wears most satisfactorily and affords a soft cushion for the frog, counteracting the evils produced by the necessary use of the iron shoe and of the artificial roads of the present day; in fact, it converts the paved street into a natural field. As the use of this pad will prevent as well as cure contraction, it is as necessary for a sound horse as a sore one. Remember, it is the "Climax."

INTERSTATE ASSOCIATION OF LIVE STOCK SANITARY BOARDS.—The annual meeting of this association was held Oct. 3 and 4 at Louisville, Ky. Resolutions were passed deploring the prevalence of tuberculosis among cattle and cholera among swine and providing for the making of an effort to secure federal legislation to stamp them both out. Dr. Salmon, who was present, representing the Department of Agriculture, stated that the Department would at the next session of Congress ask for the passage of a law prohibiting the shipment of diseased cattle from one State to the other, thus solidifying and strengthening the efforts of individual States in this line. J. H. Brown, Kalamazoo, Mich., President of the Michigan Live Stock Board, stated that he had tested cattle owned at all of the asylums in that State, finding much tuberculosis, and that in one

dairy of fifty-two cows near Detroit twenty-eight had reacted to the test. At the Kalamazoo asylum he had tested thirteen cows and found twelve of them tuberculous, according to the test. J. W. Smith, Secretary of the New York Tuberculosis Committee, read a paper detailing what had been done toward exterminating the disease in the Empire State and the testing of 4000 cows in and around Syracuse, with the result that 550 reacted. Dr. A. W. Bitting, State Veterinarian of Indiana, had a paper on the prevalence of hog cholera in that commonwealth. He stated that 500,000 hogs died of that disease in Indiana in 1899. The second day the chief subject of discussion was Texas fever. A resolution was adopted providing for the ap pointment of a committee from each State through which the fever line runs to consider the advisability of establishing a permanent zone with a closed season. Another resolution recommended that the United States Department of Agriculture establish an open season in November and December and that the various States interested act in accordance therewith. A further resolution was passed favoring the enactment of such federal laws as will put a stop to the transmission of diseases of live stock through the channels of interstate trade. Col. C. P. Johnson, Illinois, was reëlected President; E. P. Noles, West Virginia, Vice-President; Dr. E. F. Eisenman, Louisville, Secretary.

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